

## **CHAPTER 3 - Existing Management Condition on the Manti-La Sal National Forest**

### **INTRODUCTION**

This chapter provides a summary of the existing conditions for all physical, biological, social, and economic resources found on the Manti-La Sal National Forest. The following sections provide a broad based understanding of what has changed since implementation of the original Forest Plan.

### **FOREST LOCATION AND DESCRIPTION**

The 1.3 million acre Manti-La Sal National Forest (Figure 1) is located in central and southeastern Utah and extreme western Colorado. The Forest lies within eight Utah counties (Carbon, Emery, Grand, Juab, San Juan, Sanpete, Sevier, and Utah) and two Colorado counties (Mesa and Montrose). It is surrounded, for the most part, by public lands administered by the Bureau of Land Management (BLM), and isolated tracts of state and private lands. The notable exceptions are lands adjacent to the San Pitch Division, the north and west sides of the Manti Division, and the block of land surrounding the Moab Ranger District. These lands are predominantly in private ownership with some intermixed state lands.

The Forest is divided into three land areas, the Manti, San Pitch, and La Sal Divisions, and administers a variety of resource uses such as livestock grazing, timber harvest, mining, energy resource development, cultural and heritage interpretation, wildlife viewing, and outdoor recreation. The climate varies from semi-arid in the lower elevations to cool and humid in the high elevations.

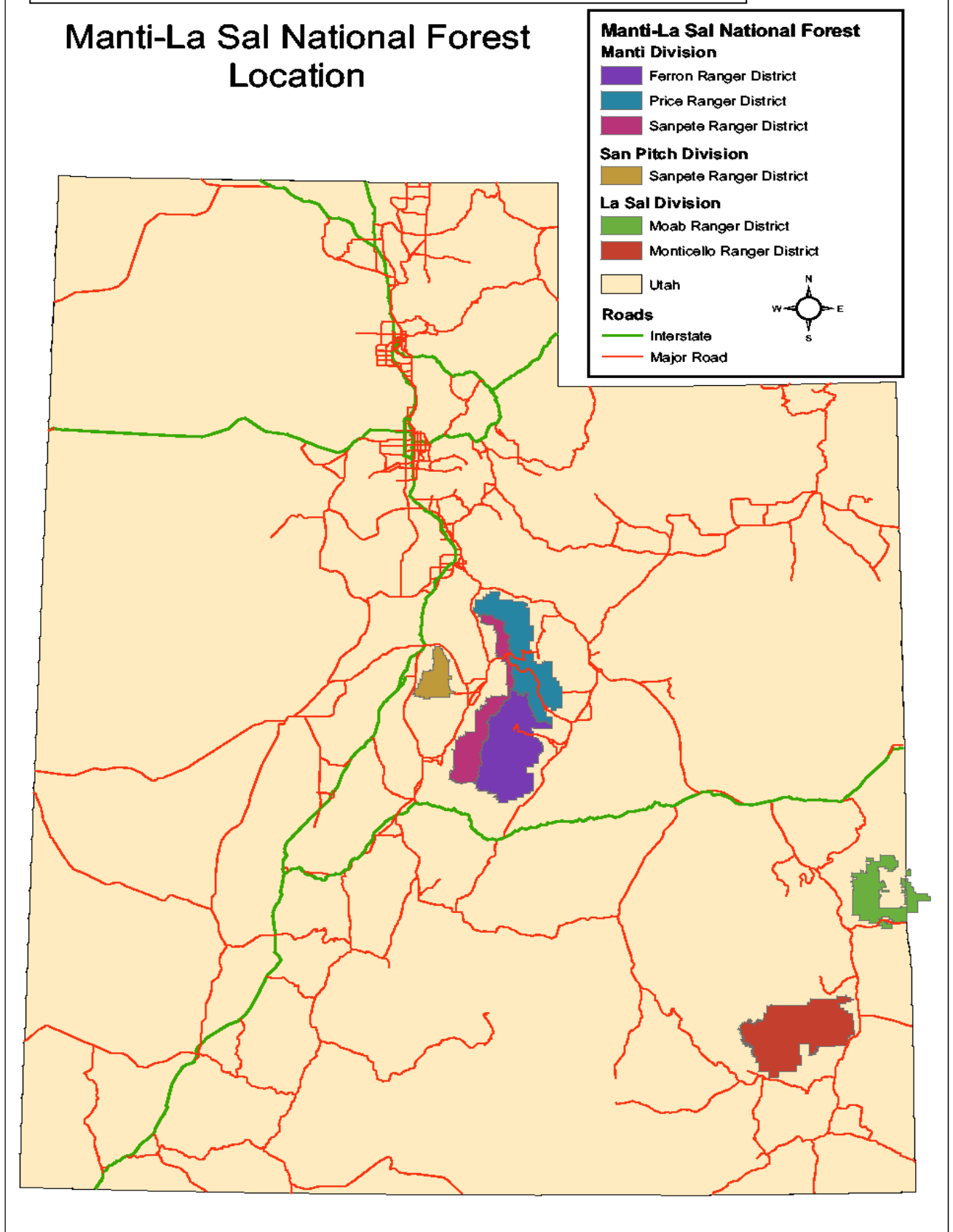
#### **Manti Division**

The Manti Division is part of the Wasatch Plateau exhibiting high elevation lakes, diverse vegetation, near vertical escarpments, and areas of scenic and geologic interest. It encompasses about 750,000 acres of National Forest System land and includes the Ferron and Price Ranger Districts, east of Skyline Drive, and a portion of the Sanpete Ranger District, west of Skyline Drive. Reservoirs and lakes provide a scenic retreat for the people living in the valleys to the east and west of the Plateau. Coal mining has been historically important, providing employment to local communities and energy for the state. Energy corridors carry electricity generated at nearby power plants to users throughout Utah and other western states. Dispersed camping, hunting, fishing, hiking, and scenic drives are popular during the warmer months. In the winter, the area is heavily used by snowmobilers, snow boarders, and cross country skiers. Off-highway vehicle enthusiasts are attracted to the Arapeen Trail System. Non-motorized trails include the Fish Creek National Recreation Trail and the Great Western Trail, which follows the Skyline Drive Scenic Backway. The southern part of the Manti Division contains several important archeological sites.

#### **San Pitch Division**

The San Pitch Division in Juab and Sanpete counties is within the boundaries of the Uinta National Forest and consists of approximately 76,000 acres of National Forest System lands administered by the Sanpete Ranger District. In 1974, management responsibility was turned over to the Manti-La Sal National Forest because the red cliffs that border the unit on the northwest from Nephi towards Levan create an effective physical barrier for access from the west. The San Pitch Division and western portion of the Manti Division lie along the eastern margin of a geologic structure known as the Western Overthrust Belt, which has yielded considerable oil and gas reserves.

Figure 1. Manti-La Sal National Forest Location Map



Recreationists use the area mostly for dispersed camping, off-highway vehicle use, and access during hunting season. Maple Canyon climbing area/campground (popular with rock climbers year round) and Chicken Creek campground are popular recreation sites.

### **La Sal Division**

#### **La Sal Division—Moab Ranger District**

The La Sal Mountains, formed by the intrusion of molten rock into sandstone, provide the scenic backdrop for local communities and Arches and Canyonlands National Parks in southeast Utah. The mountain slopes overlook Spanish Valley to the west and Castle Valley to the North. Camping, hiking, and mountain biking are popular forms of summer recreation in the area. In the winter months, cross country skiing and snowmobiling are common on the mountain passes.

#### **La Sal Division—Monticello Ranger District**

The timbered slopes in this area provide a sharp contrast to the red rock plateaus and canyons of Canyonlands National Park, Natural Bridges National Monument, and the surrounding desert. The Abajo Mountains, known locally as the Blue Mountains, provide the scenic backdrop for the communities of Monticello and Blanding. The area provides trails for hiking, equestrian, and mountain bike use as well as motorized single-track trails for off-road motorcycle use. Developed and dispersed camping and off-highway vehicle use is popular in the area.

The Elk Ridge area is formed by steep sandstone canyons and mesa tops. The diverse cultural resources found in this unit include archeological landscapes that are among the most significant in the region. Pictographs, petroglyphs, and stone dwellings are evidence of past civilizations. Sightseeing, hiking, off-highway vehicle use, dispersed camping, fishing, and hunting are popular activities during the spring, summer, and fall seasons.

Dark Canyon Wilderness, the first major Colorado Plateau Canyon terrain to be added to the National Forest Wilderness System, contains arches, springs, seeps, and hanging gardens. High red rock canyons dwarf visitors with terraced castle-like walls towering 3,000 feet above the canyon floors. Wildlife species are diverse and include mule deer, cougar, and desert bighorn sheep.

## **PHYSICAL COMPONENTS**

### **THE 1986 MANTI-LA SAL FOREST PLAN AND ITS IMPLEMENTATION**

The Manti-La Sal National Forest Land and Resource Management Plan (Forest Plan) was approved in 1986. It identified 15 management units and associated management prescriptions. Each management prescription, while multiple use, has a primary emphasis and represents the management requirements applicable to specific units of land. Management units were used to provide interdisciplinary resource direction. The following table displays the current management of the Forest by Management Emphasis Unit.

**Table 1. Manti-La Sal National Forest Acreage by Management Unit.**

MANAGEMENT UNITS		APPROXIMATE ACRES
<b>Recreation Emphasis Units</b>		
<b>DRS</b>	Developed Recreation Sites	3,396
<b>UDM</b>	Undeveloped Motorized Recreation Sites	1,784
<b>SPR</b>	Semi-Primitive Recreation	119,091
<b>Wildlife Emphasis Units</b>		
<b>KWR</b>	Key Big-Game Winter Range	16,595
<b>GWR</b>	General Big-Game Winter Range	187,858
<b>Range Emphasis Units</b>		
<b>RNG</b>	Range Forage Production	770,054
<b>Timber Management Emphasis Units</b>		
<b>TBR</b>	Wood Fiber Production and Utilization	147,360
<b>Watershed Emphasis Units</b>		
<b>RPN</b>	Riparian	Not mapped
<b>MWS</b>	Municipal Water Supply	11,968
<b>WPE</b>	Watershed Protection and Improvement	13,587
<b>Minerals Emphasis Units</b>		
<b>MMA</b>	Leasable Minerals Area	2,999
<b>Special Emphasis Units</b>		
<b>RPI</b>	Research Protection and Interpretation Areas	9,701
<b>DCW</b>	Wilderness	47,097
<b>SLD</b>	Administrative Facility and Special Use Sites	316
<b>Other Units</b>		
<b>UC</b>	Utility Corridors	625

Since its approval, the Forest Plan has been amended eighteen times (Table 2).

**Table 2. Manti-La Sal Land and Resource Management Plan Amendments.**

#	DATE OF APPROVAL	AMENDMENT DESCRIPTION
1	April 1987	Designated Levan Peak electronics site and allocated Administrative Facility and Special Use Sites (SLD) management area.
2	April 1988	Corrected 31 map errors, adopted eight changes (labeled plan 1-3, 5-9) resulting from negotiations with appellants of the Forest Plan Record of Decision, and made five changes to clarify and simplify the process of determining oil and gas lease stipulations.
3	June 1988	Motorized travel on specific roads and trails and commercial timber harvest was restricted within some Semi-Primitive Recreation (SPR) management areas. Boundaries of some SPR management areas were modified. Modified forest-wide and management area direction regarding leasable mineral stipulations including stipulations in Appendix B.
4	May 1990	Lease modification to boundary of Appendix F, Map F-2, Coal Multiple-Use Evaluation Areas.
5	September 1990	Modified forest-wide management direction for rangeland proper use criteria.
6	January 1994	Modified forest-wide and management area direction for leasable oil and gas lease stipulations.
7	March 1995	Modified SPR management area direction for trail system management by allowing targeted mechanized use (bicycles and game carts) on the Fish Creek National Recreation Trail.
8	December 1996	Lease modification to boundary of Appendix F, Map F-2, Coal Multiple-Use Evaluation Areas.

#	DATE OF APPROVAL	AMENDMENT DESCRIPTION
9	March 1997	Designated East Rim communication site; modified forest-wide direction and Appendix F, management area map.
10	March 1997	Designated Abajo Peak communication site; modified forest-wide direction and Appendix F, management area map.
11	May 1997	Designated Wilcox Flat communication site; modified forest-wide direction and Appendix F, management area map.
12	November 1998	Established the Hideout Mesa and Mill Creek Gorge research natural areas.
13	July 1999	Modified visual quality objectives along the Harts Draw Road as shown on the Visual Quality Objective (VQO) map, Appendix F. About 3,500 acres of modification changed to partial retention.
14	July 2001	Utah Northern Goshawk Project Amendment established forest-wide management direction for northern goshawk.
15	June 2001	Utah Fire Amendment modified forest-wide and management area direction for wildland fire suppression, fuels, and prescribed fire and established direction for wildland fire use.
16	August 2001	Changed the location of two segments of the Price-Provo pipeline utility corridor. The two segments were reallocated to the Utility Corridor (UC) land allocation and the two abandoned corridor segment locations were reallocated to the surrounding management units. Utah Northern Goshawk Project Amendment standard (j) was modified.
17	October 2001	Designated the Price-Provo underground utility corridor location suitable for cross-country underground pipelines including refined petroleum product pipelines. This applied specifically to the two segments of the pipeline amended in the Record of Decision (Amendment #16) referred to above.
18	June 2003	Management Indicator Species (MIS) Change Amendment replaced the Blue Grouse with the northern goshawk as a management indicator species for mature conifer/mixed conifer.

The need to provide linkage between forest planning direction and budget was recognized while developing the Forest Plan. There were expectations that the objectives in forest plans would drive the budget process. Forest Plan implementation schedules and objectives were developed with few budgetary constraints. Appendix A of the 1986 Forest Plan contains an extensive schedule of proposed and probable projects for implementation. Many of those projects have been implemented, while others were found unnecessary, were unfunded, or were found to have unacceptable environmental consequences.

## MONITORING AND EVALUATION

The Forest Plan monitoring and evaluation process is designed to provide feedback to planners and the Forest Supervisor about the effects and effectiveness of Forest Plan implementation (36 CFR 219.11 [d]). The results may demonstrate needed changes in management direction (36 CFR 219.12 [k]). Forest-wide and site-specific monitoring elements are listed in the Forest Plan (USDA Forest Service, 1986, IV-3 to IV-13).

Following the initial five years of Forest Plan implementation, the Forest conducted a broad review of desired conditions, objectives, and plan direction. Results were summarized in the 1992-2000 Forest Plan Monitoring and Evaluation Report, which presented monitoring data gathered since 1991 and evaluated trends since 1987.

The original Forest Plan included monitoring requirements which were not directly linked to goals and which were beyond our capability to conduct. Monitoring requirements were "functional" (i.e., focused on a single resource or discipline) rather than integrated and neglected the complexity and connectedness principle of ecosystem management. Monitoring requirements should be both functional and integrated. In some cases, effective use of monitoring for meaningful evaluation of outcomes related to Forest Plan goals was not possible.

## **WATERSHED HEALTH**

A watershed is a land area drained by a single network of streams. A healthy watershed has a steady flow of water that sustains its water-related or water-dependent species without degrading soil quality despite periodic disturbances such as fires and floods.

### **RIPARIAN AREA MANAGEMENT**

A variety of riparian areas exist on the Forest, including those associated with springs, seeps, stream channels, and wetlands (includes wet meadows). Each riparian ecosystem has unique soil/water functions and associated vegetation dependent on the influence of water. Riparian areas provide important ecological functions such as aiding in the control of non-point source pollution by holding and using nutrients and reducing sediment; contributing organic matter to streams; providing recreation and scenic values; and supplying food, cover, water, and aquatic habitat for diversity of aquatic and terrestrial animals. Riparian areas include vegetation that stabilizes streambanks and shades streams to optimize light and temperature conditions for aquatic plants, fish, and other animals.

In the Forest Plan, stream-side riparian areas, wetlands, springs, and seeps are addressed under the common term “riparian.” Wetlands, springs, and seeps do not receive the same level of awareness and protection as do stream-side riparian areas. Plan direction is focused towards activities affecting perennial streams and stream-side systems.

Limited riparian area surveys were conducted on the Forest in 1992 and 1997 (USDA Forest Service, 2001b). These inventories included an evaluation of streambank impacts, loss or decline of woody riparian plants, and sediment conditions. Available data indicates riparian areas have been maintained or improved since implementation of the Plan. However, these surveys indicate riparian areas near popular campgrounds and picnic areas are in poor condition probably due to heavy recreation use. Since riparian surveys were recently initiated, data is insufficient to indicate long-term trends.

#### **Stream-side Riparian Areas**

Monitoring of riparian areas has primarily focused on stream-side vegetation and streambank alteration. Sequential photo monitoring has successfully documented changes but does not provide sufficient information about causes or consequences of the change (USDA Forest Service, 2001b). Resource managers have identified existing conditions, such as roads located in drainage bottoms and developed/dispersed recreation sites in riparian areas, which interfere with opportunities to improve riparian resources. Actions have been taken to relocate dispersed recreation sites, roads, and trails out of riparian areas to remedy this situation.

Streambank alteration is occurring from unauthorized off-highway vehicle use, stream-side recreation use, and livestock grazing in areas of concentrated use. These activities have resulted in soil compaction, reduced riparian vegetation, and streambank erosion. The current Forest Plan does not address streambank alteration or define tolerances or parameters for streambank alteration.

The connectivity of the stream/riparian/wetland system can be evidenced through the riparian vegetation typically found along intermittent drainages, indicating subsurface water flow. For example, a coal leasing data adequacy study confirmed that intermittent streams flowing down East Mountain were important sources, supplying water to perennially flowing Indian Creek and the associated wetland in Upper Joe’s Valley (P. Kilbourne, 1989).

The Forest Plan does not recognize the connectivity between intermittent and ephemeral stream reaches and springs that support riparian ecosystems and how they contribute to lower perennial stream sections.

### **Spring and Seep Riparian Areas**

Springs are places where water flows out of the ground from groundwater aquifers to the surface environment. Some springs are seeps where water flows out of sand, soil, or gravel wetting the ground surface with no visible flow to the surface.

The Forest's spring developments for livestock have been built to a variety of standards and range from very poor to good condition. Some of these developments do not provide adequate protection for their source area causing soil compaction, puddling, and loss of vegetation near the development. Some spring developments do not provide features to allow access to and/or escape from the water development to protect small wildlife. Large elk herd wallows are causing soil compaction and loss of vegetation to certain spring and seep areas.

The development of springs, involving flow diversions, is affecting the dependent, associated riparian ecosystem by reducing surface flows. If spring flow is affected by human activities, replacement of water for consumptive uses is feasible in many cases, but does not compensate for the lost ecological function.

### **Wetlands**

Wetlands are those areas inundated by surface or groundwater that, under normal circumstances, support vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds (FSM 2527.05). A Forest wetlands inventory is currently underway and will be completed by September 2005 (P. Kilbourne, personal communication).

Due to their unique value, limited extent, and potential for rapid degradation, wetlands are specifically protected by law (Executive Order 11990). The Forest Plan does not distinguish wetlands from other riparian areas in terms of their unique soils, vegetation, landform, sensitivity to disturbance, and recovery potentials.

### **Proper Use Criteria**

Proper Use Criteria are used to ensure livestock management activities are kept to levels that protect soil, water, riparian, and aquatic resources and to provide forage and cover for wildlife. In January 1990, the Forest Supervisor signed the Forest-wide Range Proper Use Criteria Decision Memo that resulted in a Forest Plan amendment. The decision memo established Proper Use Criteria to be used in Part 3 of grazing permits, while retaining the option of using these criteria or allowing interdisciplinary teams to develop site-specific standards for individual allotments.

The Utah Northern Goshawk Project amendment (USDA Forest Service, 2000b) gives direction to modify grazing practices if the desired seed, mast, and foliage component needed for prey species is found to be functioning at-risk.

The Intermountain Region has recommended that forest plans contain desired condition and goal statements for the following evaluation standards (Winward and Heffner, 2002):

- ***Streambank alteration tolerance*** - Streams should have access to their floodplains during spring runoff twice every three years and channel width to depth ratios, entrenchment ratios, and sinuosity should be within expected norms for their appropriate channel type.
- ***Utilization criteria for riparian and upland browse species*** - Browse utilization standards will add focus to the importance of browse as habitat, forage for wildlife and livestock, functioning in riparian areas to provide shading and bank stability, and for ground cover on the uplands to

maintain watershed conditions. Utilization for browse species would be based on both the plant's ability to withstand use and produce browse, but also on the ability of plants to reproduce and maintain their populations by adding new individuals (USDA Forest Service, 1995).

- ***Utilization criteria for hydric and non-hydric species in the greenline*** - Sufficient vegetation should be left on the channel banks to catch sediments.
- ***Stubble height on selected key species (non-hydric) and/or the amount of bare ground within the riparian zone but away from the greenline*** - Sufficient vegetation and litter should be left on site to prevent soil movement and to maintain soil productivity. The direction contained in the 1990 Rangeland amendment provides for protection for the riparian zone away from greenline with utilization standards for riparian vegetation and limitations for percent allowable soil disturbance. Soil disturbance is not defined in the rangeland amendment and, as a result, may not be in agreement with effective ground cover parameters or detrimental soil disturbance allowances.

## **AQUATIC ECOSYSTEM**

Aquatic environments exist throughout the Manti-La Sal National Forest in the form of springs, potholes (less than 1 acre), ponds (1-2 acres), lakes (> 2 acres), reservoirs, and streams. Aquatic environments are found throughout all elevation and vegetation zones.

At the time the Forest Plan was implemented, the Forest reported 513 miles of fishable stream and 1,765 surface acres of lakes and reservoirs. Geographical Information System (GIS) technology currently indicates 1,651 miles of perennial stream, 9,280 miles of intermittent streams, and 8,189 surface acres of lakes and reservoirs (greater than two acres) are found on the Forest. The majority of perennial streams, lakes, and reservoirs support fish. Some intermittent streams may support early life stages of fish.

Native fish species currently found on the Forest include the Colorado and Bonneville cutthroat trout; roundtail chubs; speckled dace; redbreast, sand, and red shiners; fathead minnows; mountain, bluehead, and flannel mouth suckers; and mottled sculpins. Non-native fish species include rainbow, brown, yellowstone, tiger, and brook trout. Native amphibian species include tiger salamander, Great Basin Spadefoot and boreal toad, boreal chorus, and northern leopard frogs. Numerous aquatic insects are also present.

The Bonneville and Colorado cutthroat trout were petitioned for listing under the Endangered Species Act of 1973, affecting management of habitats where they exist. Genetic testing to determine the purity of the cutthroat trout species is ongoing under an agreement with the State of Utah. Results from this testing could affect how some Forest aquatic habitats are managed. Except for macroinvertebrates (a management indicator species), the Forest Plan does not identify specific management direction or monitoring requirements for the aquatic environment.

Aquatic environments have been impacted by a variety of management activities and uses. Landslides and floods severely damaged about 167 miles of stream in 1983 and 1984. Several lake, stream, and riparian restoration and improvement projects have been completed, some designed to repair damage resulting from the 1983-84 floods. Tamarisk, an invasive tree species, is replacing native vegetation on a few watercourses. Livestock grazing, heavy recreation use, and unauthorized off-highway vehicle use have altered streambanks and riparian vegetation.

## **SOIL PRODUCTIVITY**

Soil productivity is defined as the inherent capacity of a soil to support the growth of specified plants and plant communities, or sequence of plant communities. Plant growth is generally dependent on available soil moisture, nutrients, texture, structure, organic matter, and the length of the growing season. Soil



productivity may be expressed in terms of volume or weight per unit area per year, percent plant cover, or other measures of biomass accumulation (Forest Service Handbook (FSH) 2509.18).

Soil surveys have been completed for the entire Forest. Soil productivity has been affected to varying degrees by road, trail, and log landing construction; livestock grazing, timber harvest, and reforestation treatments; dispersed recreation; large scale, high intensity wildfires; and the establishment and spread of noxious weeds and invasive plant species.

Watershed rehabilitation, improved range management, and reclamation stipulations have been instrumental in minimizing undesirable effects on the soil and improving soil resource conservation. Since the implementation of the Forest Plan, reviews have been conducted on soil disturbing activities with potential for altering soil productivity. Generally, these reviews have not identified major concerns with soil compaction, erosion, or reestablishment of ground vegetation.

Forest watershed treatments have included erosion and sediment control by contour trenching, gully plugs, stream bank stabilization, and reseeding of areas with insufficient vegetation. Annual accomplishments have varied based on funding, staffing, severity of wildfire seasons, and weather conditions. Watershed improvement activities have not met the Forest Plan objective of 470 acres per year, with only 102 acres accomplished from 1996 to 2000 (USDA Forest Service, 2001b). Continued monitoring of past treatments is needed to ensure erosion control features are functioning and objectives are being met.

#### **Effective Ground Cover**

The minimum effective ground cover, following disturbance in an activity area, should be sufficient to prevent detrimental erosion. Effective ground cover consists of vegetation, rock fragments, and litter (FSH 2509.18). The minimum groundcover necessary to protect soil from erosion is a function of soil properties, slope gradient and length, and erosivity. As these factors vary by site, guidelines for the minimum amount of effective ground cover must be determined locally (FSH 2509.18).

The Forest Plan states, “design continuing mitigation or rest rotation practices and follow-up maintenance activities to insure that vegetative ground cover exceeds 80 percent of adjacent similar undisturbed sites” (USDA Forest Service 1986, III-32). In light of the completion of the soils inventory and the historic range of variation of soil disturbance under Properly Functioning Condition (see vegetation section), the required percentage of effective ground cover should be reviewed for consistency with current knowledge and understanding of forest soils.

#### **Coarse Woody Debris**

Above ground organic matter, which consists of large woody debris and/or litter, is vital to retaining nutrients and microorganisms necessary to maintain long-term soil productivity. The Forest Plan has requirements for snags and coarse woody debris for the forested types (USDA Forest Service, 2000b). These requirements are adequate to meet Graham’s 1994 coarse woody debris requirements for long-term soil productivity. The desired conditions of the current Forest Plan do not reflect the role of coarse woody debris in the ecosystem.

### **WATER QUALITY/QUANTITY**

#### **Water Quality**

The Manti-La Sal National Forest is required to meet or exceed water quality standards for the states of Utah and Colorado. Based on data from the Forest Service and Utah Division of Water Quality cooperative monitoring project, Forest waters generally meet water quality standards for their designated beneficial uses except for exceedances of total suspended solids, total phosphorus, and iron.

The exceedances for total phosphorus and suspended sediment generally occur on the same dates and may be associated with spring runoff or flows from summer thunderstorms. Streamflow data and/or information about weather conditions are not in the database. The causes of iron exceedances have not been determined.

Current baseline data does not adequately represent the overall quality of water the Forest produces. Several baseline stations are at locations influenced by Mancos shales, which even in an undisturbed state are a source of phosphorus and total dissolved and suspended solids (USDA Forest Service, 2001b).

### **303d Waterbodies**

Waterbodies not currently meeting state water quality standards are considered impaired. These impaired waters receive special management measures to reduce the identified pollutants and restore water quality to support their identified beneficial use(s). Section 303d of the Clean Water Act requires each state to identify those waterbodies where existing pollution controls are not stringent enough to meet state water quality standards.

With the exception of one stream and one reservoir, waterbodies on the Manti-La Sal National Forest are meeting water quality standards for their designated beneficial use(s) (Utah Division of Water Quality, 2004). The State of Colorado has not identified any 303d watercourses or waterbodies of concern within the Manti La Sal National Forest (P. Hegeman, personal communication). Table 3 describes the 303d waters found within the Manti-La Sal National Forest. The current Forest Plan does not address 303d waters.

**Table 3. 303d Waters found within the Manti-La Sal National Forest.**

<b>WATERBODY</b>	<b>DESCRIPTION</b>	<b>POLLUTANTS</b>
<b>Castle Creek</b>	Castle Creek and tributaries from the confluence with the Colorado River to headwaters	Salinity/ Total Dissolved Solids/ chlorides
<b>Lower Gooseberry Reservoir</b>	Lower Gooseberry Reservoir	Dissolved Oxygen, pH

Source: State of Utah, Division of Water Quality, 2004.

### **Municipal Water Supply and Drinking Water Source Areas**

Drinking water source areas on the Forest include springs, streams, aquifers, and reservoirs. The Forest supplies all, or a portion of, the water used by 23 local communities. About 39 percent of Manti-La Sal National Forest land provides municipal water (USDA Forest Service 1986, II-47, 48). Continued population growth is anticipated and most likely will result in an increased demand for better quality water from existing sources and more quantity from additional sources, primarily spring developments.

The surface watershed above Little Bear Spring (the primary water source for the City of Huntington); portions of the watershed of Indian, North, and Johnson creeks (the primary water sources for the cities of Monticello and Blanding); and approximately 15 springs are identified in the Forest Plan as municipal water supply (MWS) areas. Hydrologic studies indicate the Little Bear Canyon watershed, by itself, is not capable of sustaining the flows observed at Little Bear Spring (Boyer, 2003). The source area for Little Bear Spring is not limited to the surface watershed and includes a portion of the adjacent Mill Creek watershed. It is incorrectly delineated in the Forest Plan.

In May 2001, the City of Moab in conjunction with the Federal Environmental Protection Agency designated the Glen Canyon Aquifer as the sole source for culinary water for Moab residents. The city

of Moab has requested Forest Service protection and management of the National Forest System lands portion of the 76,000 acre watershed which recharges the Glen Canyon Aquifer (Moab, City of. 2004).

Utah law requires each public drinking water supplier to prepare a source protection plan, which must be reviewed and approved by the Division of Drinking Water (Department of Environmental Quality). As part of the Clean Water Action Plan, federal agencies are to use these assessment results when developing management plans for federal lands and facilities to consider state, tribal, and local drinking water source protection priorities. Drinking water source protection plans have not been evaluated to determine whether additional Forest Plan management direction is necessary.

### **National Forest Consumptive and Instream Water Needs**

The Forest Plan contains general statements about securing a favorable flow of water, and obtaining or maintaining water rights for consumptive and instream flows. The Forest Plan does not identify and generally quantify/qualify the consumptive and non-consumptive water needs, including instream flows, in-place standing water, and conservation pools (USDA Forest Service 1986, III-23, 33). In addition, the Plan does not identify areas where the Forest would not authorize occupancy to divert water from National Forest System lands. These areas might include high-value aquatic sites such as Colorado cutthroat conservation/recovery watersheds, wetlands, eligible wild and scenic rivers, research natural areas, and other water dependent sites.

The Forest anticipates continued requests for development of springs on National Forest System land to support the improvement of private lands, to provide water sources for communities and inholdings, and generate electricity for small-scale hydroelectric power facilities.

The current Plan is difficult to use, as information must be gathered from several locations/resource directions. The current Plan also lacks adequate guidance, such as identifying appropriate uses, preventing inappropriate uses, and requiring suitable mitigation to be used as screening criteria when processing special use permits for water development.

## **MINERALS MANAGEMENT**

### **SALEABLE (COMMON VARIETY) MINERALS**

Common variety minerals on the Manti-La Sal National Forest consist of sand, gravel, and stone generally used for road aggregate, riprap, and building stone. These minerals are found in limited supply on the Forest. Issuance of permits to quarry or collect common variety minerals is discretionary by the Forest Service. Demand is expected to increase with growing populations and recreation use, expansion of adjacent communities, and construction of summer home areas on non-Federal inholdings.

### **LOCATABLE MINERALS**

Locatable minerals include any solid, natural inorganic substance occurring in the crust of the earth, except for the common varieties of mineral materials and leasable minerals (FSM 2811.2). In general, locatable minerals are those hardrock minerals mined and processed for the recovery of metals. They also may include certain nonmetallic minerals and uncommon varieties of mineral materials, such as valuable and distinctive deposits of limestone or silica.

Locatable minerals found on the Manti-La Sal National Forest include gypsum, uranium, vanadium, and metals. All areas, with the exception of the Dark Canyon Wilderness and small isolated areas currently withdrawn from mineral entry for administrative purposes (dams/reservoirs, recreation developments, administrative sites, and research natural areas) are open and available for prospecting and development of mining claims.

### **Gypsum**

Gypsum, an evaporite mineral, occurs in upturned, near vertical beds exposed on canyon walls located on the western slope of the San Pitch Mountains, also known as the Gunnison Plateau. It is used in the production of plaster and dry wall and as a soil amendment. Three mines are currently in operation. Gypsum mines provide local employment to the area around Nephi but do not contribute appreciably to the state or federal economies. Production in existing surface mines is sporadic, depending on available markets and demand. It is expected sporadic mining will continue through the planning period. The existence of gypsum deposits is not acknowledged in the 1986 Forest Plan.

### **Uranium/Vanadium**

Uranium/vanadium minerals were mined extensively on the Moab and Monticello Ranger Districts from the 1950s through the early 1980s for the production of nuclear weapons and fuels. Uranium and vanadium generally occur together in ore minerals. Before the 1950s, the same minerals were mined sporadically to produce vanadium, used as a hardening agent in metal alloys. Uranium was generally treated as a waste product.

Since the early 1980s, uranium values have been low. There has been little demand for the low concentration deposits in the Four Corners area primarily due to the higher concentration deposits that occur in Canada and Australia. Currently there are no active mines on the Forest and demand for uranium/vanadium minerals is expected to remain low. There is potential for some exploration activities and possible sporadic production from small family operated mines.

Several abandoned uranium/vanadium mine sites have been inventoried, evaluated, and prioritized for reclamation. These abandoned mines present a safety hazard and are sources of potentially polluting materials. Numerous adits and shafts have been plugged to decrease hazards. Mines are being reclaimed in order of priority, as available funds allow. Several mine areas have been reclaimed and stabilized.

### **Other Locatable Minerals**

Gold, silver, copper, and other associated minerals have been mined historically from lode deposits in the La Sal and Abajo mountains and, to a lesser extent, in placer deposits in the surrounding drainages. Mines were active in the late 1800s and early 1900s, producing small but valuable amounts of ore. No mines have operated on the Forest since that time due to low ore concentrations and the volatility of metal prices. Exploratory drilling occurred in the La Sal Mountains in the 1960s and early 1990s, but did not result in the filing of additional claims or opening of any mining operations. Small-scale exploration could occur in the future, but the potential for discovery and production of economic deposits is low.

## **LEASABLE MINERALS**

Leasable minerals include coal, oil, gas, phosphate, sodium, potassium, oil shale, and geothermal steam (FSM 2811.2).

### **Coal Resources**

Mineable coal occurs beneath the Wasatch Plateau at depths of up to 3,000 feet. An average of 22 million tons of coal per year was mined from this portion of the Forest during the 1990s and early 2000s, generating 30 to 40 million dollars per year in federal revenue. Currently, coal production exceeds 19 million tons and generates an average of \$30 million annually. Surface facilities on the Forest are limited to a few canyons along the east side of the Wasatch Plateau and include access roads, coal loading facilities, and mine portal facilities.

The coal mining industry has been the primary employer in Carbon, Emery, and Sevier counties for most of the twentieth century continuing to the present. The economics of coal mining have changed

considerably since Forest Plan implementation due to the increased use of longwall mining in place of conventional room-and-pillar mining. Mining efficiency has generally increased from a production rate of 16 tons/miner/day to 63.7 tons/miner/day. Mining efficiency has increased at the expense of mining-related jobs.

Annual coal production has increased faster than predicted while the number of proposed and new leases has lagged behind expectations. It was predicted that approximately 24 new lease actions would be proposed and processed from 1987 to 1997. Analyses were completed for and consent given to seven new leases from 1987 through 2000. Approximately 10 lease modifications have been processed adding about 160 acres to existing leases.

Remaining mineable reserves in existing leases would provide coal reserves for approximately 20 years, considering current mining methods and production rates. There are only three large blocks of remaining unleased coal reserves on the Forest that could be available to provide reserves beyond these estimates. Additional reserves may be made available to existing mines by addition of adjacent small tracts to existing leases (lease modifications).

### **Oil and Gas Resources**

Oil and gas leasing on the Manti-La Sal National Forest has been an ongoing process since enactment of the Mineral Leasing Act in 1920. Most of the Forest has been leased at one time or the other, and approximately 100 exploratory wells have been drilled. Historically four gas fields were developed. Currently only the Flat Canyon/Indian Creek gas field in the Cottonwood Canyon area is producing.

Between 1986 and 1992, oil and gas activities were administered according to management direction established in the Forest Plan. Leasing was discontinued from 1987 to 1992 after passage of the Onshore Oil and Gas Leasing Reform Act of 1987, which made almost all leasing recommendations in forest plans obsolete and required the Forest Service to determine the availability of lands for leasing and then either subject or not subject to special leasing provisions.

The Forest conducted a Forest-wide oil and gas leasing analysis between 1990 and 1992 to meet the provisions of the Federal Onshore Oil and Gas Leasing Reform Act. The analysis was based on a Reasonably Foreseeable Development Scenario (RFDS) that looked at the potential for occurrence and development of oil and gas resources. The entire Forest was considered to have moderate potential for oil and gas development with the following exceptions: the igneous core of the La Sal and Abajo mountains were considered to have low potential and the northern part of the Manti Division to have high potential for natural gas.

The Final Environmental Impact Statement (FEIS) for Oil and Gas Leasing on Lands Administered by the Manti-La Sal National Forest was completed in 1992 and the final Record of Decision (ROD) released in January 1994. The Record of Decision amended the Forest Plan, determined which lands are administratively available for leasing, and authorized the BLM to offer specific lands for lease and identified the conditions of surface occupancy (stipulations). The Forest Plan amendment established stipulations and mitigation measures to be considered for approval of leaseable mineral operations (USDA Forest Service 1986, Appendix B). These stipulations and measures reflect the Forest Service's effort to discover and produce energy minerals, minimize effects to other resources, and be consistent with applicable laws and regulations.

Leasing resumed in 1994 with approximately 100,000 acres leased annually. Only two wildcat wells were drilled on the Forest between 1987 and 2000. Two wildcat wells were drilled in 2001, one in 2002, and none in 2003. Maintenance of six existing gas production wells has continued in the Flat Canyon/Indian Creek Field.

## ***Preliminary Analysis of the Management Situation***

The prediction for the number of exploration wells has been nearly on track for the Manti Division (USDA Forest Service, 1992b). However, no new oil and gas discoveries have been made. The Trough Springs Ridge area (within the Clear Creek Field) may have some potential revitalization. Overall, activities have lagged well behind predictions.

The Record of Decision for Oil and Gas Leasing (USDA Forest Service, 1994a) established portions of the San Juan Analysis area of the Monticello Ranger District as not available for leasing (NAL) due to cultural issues. The decision identified the need for the area to be inventoried and evaluated for designation as a cultural district or released for oil/gas leasing.

Coal bed methane exploration was discussed in the FEIS for Oil and Gas Leasing (USDA Forest Service, 1992b), but there was inadequate drilling information to predict on-Forest exploration activities. Since that time, coal bed methane exploration and development has greatly expanded at low elevations below the Forest boundary throughout Castle Country between Emery and Emma Park (north of Price). There is very low potential for coalbed methane occurrences and development in the high elevation areas of the Manti Division (Wasatch Plateau) due to complex faulting that most likely released the gas from coalbeds and deep cover. Only the low elevation areas of the Forest along the eastern flank of the Wasatch Plateau have the potential for coalbed methane development. Currently there is no coalbed methane production on the Forest.

### **Agency Responsibilities**

#### **Leasing (Oil and Gas, Coal)**

The Bureau of Land Management (BLM) is the leasing agency responsible for issuance and administration of mineral leases. BLM is also responsible for approval of coal Resource Recovery and Protection Plans.

The Forest Service as the Surface Management Agency for National Forest System lands must consent prior to the BLM issuing leases and can prescribe measures for the protection of non-mineral interests that BLM must incorporate into leases as stipulations.

#### **Oil and Gas Development**

The BLM is responsible for approval of Applications for Permit to Drill (APD). Prior to approval of an APD, the lessee/operator must obtain approval of a Surface Use Plan of Operations (SUPO) from the Forest Service. The APD consist of two parts, the Drilling Plan and SUPO. BLM administers the drilling plan portion of the APD (43 CFR 3100). The Forest Service administers surface operations consistent with the approved SUPO (43 CFR 3100 and 36 CFR 228, Subpart E).

#### **Coal Development**

In Utah, the Division of Oil, Gas, and Mining (DOGM) must obtain concurrence from the Forest Service concerning post-mining land uses and terms and conditions for the protection of non-mineral interests before issuing mine permits. The Office of Surface Mining (OSM) is the responsible agency for approval of Mining Plans and issuance of Mine Permits. The Assistant Secretary of Lands and Minerals, US Department of Interior, retains authority for Mine Plan approval but has delegated responsibility for issuance, administration, and enforcement of mine permits to the Utah Division of Oil, Gas and Mining (DOGM).

The Forest Service must consent to the post-mining land uses and the terms and conditions for the protection of non-mineral interests before approval of Mine Plans by OSM. In Utah, DOGM must also obtain concurrence of the Forest Service concerning post-mining land uses and terms and conditions for the protection of non-mineral interests, before issuing mine permits.

## **PALEONTOLOGICAL RESOURCES**

The Manti-La Sal National Forest hosts a large variety of invertebrate and vertebrate, as well as plant, fossils. Especially significant finds have been late Cretaceous dinosaurs, plant assemblages, lizards, and early Tertiary and Pleistocene mammals. All vertebrate fossils are protected on public lands. Collecting and excavation is done by permit only. Permits are only issued to qualified individuals or institutions for academic research. Collected fossils must be properly documented and curated, remain the property of the United States, and be made available to other qualified researchers. Current Forest Plan direction does not provide criteria for issuing permits and documentation/curation of discoveries.

## **AIR QUALITY**

The entire Manti-La Sal National Forest is designated as a Class II airshed. Two Class I airsheds, Canyonlands National Park, north of the Monticello Ranger District, and Arches National Park, west of the Moab Ranger District, are near the Manti-La Sal National Forest. In both cases, these National Parks are normally upwind of the Forest.

Forest activities are required to comply with Utah and Colorado State Air Quality Standards. The largest source of air pollution from Forest activities is smoke from fires (both wildfires and prescribed fires) and dust from unpaved Forest roads. No notices of violations of state air quality standards have been received (USDA Forest Service, 2001b).

## **BIOLOGICAL COMPONENTS**

Biological diversity is the variety and abundance of life and its processes and includes all living organisms, the genetic differences among them, and the communities and ecosystems in which they occur. Biological diversity also includes the compositions, structures, function, and habitat of the species, and how the species and their habitat interact. The interactions of biological and physical components operate at multiple scales, from micro-sites to regional landscapes.

The Forest Service's role in conserving biodiversity is becoming increasingly important as private land uses reduce available habitat due to development, fragmentation, and the proliferation of invasive species. Realizing that numerous threatened, endangered, and sensitive species (TES) currently reside or seek refuge on National Forest System and adjacent lands, the Forest Service serves a key role in conserving biological diversity by maintaining diverse, productive, and sustainable ecosystems.

## **VEGETATION**

### **NORTHERN GOSHAWK FOREST PLAN AMENDMENT**

In March 2000 the Forest Plan was amended by the Utah Northern Goshawk Project (USDA Forest Service 2000b, Appendix CC, 55-63), which provided the following forest-wide direction:

- Restoration and maintenance of forested landscapes in a properly functioning condition.
- Encourage conditions which are within the historic range of variation (HRV).
- Utilize native plant species to the extent practicable.
- Provide for snags and down logs and woody debris as habitat needs.
- Conduct landscape level analyses to provide information concerning resource conditions, risks, and opportunities, and to reduce the loss of needed habitat.
- Additional northern goshawk habitat management direction and monitoring.

### **Properly Functioning Condition**

The Properly Functioning Condition (PFC) assessment is the tool used to identify the minimum composition/structure/function/pattern of vegetation necessary to be dynamic and resilient to disturbance.

The intent of the PFC assessment is to increase understanding of ecosystem components at a variety of scales and identification of those that are at risk. This process is intended to be descriptive, not prescriptive. It is also intended to share knowledge gathered from a variety of viewpoints and disciplines, and from this information develop common perspectives of those ecosystems. The assessment is not intended to drive specific treatment projects but to determine priority work for ecosystems at risk. A table depicting the relative changes in landscape patterns and departure from historical range is found in Appendix B.

### **Composition/Structure/Pattern/Function of Vegetation**

The maintenance of compositional, structural, and functional diversity of vegetation, and the patterns in which it exists, is essential to the continued provision of ecological processes.

**Composition and Structure:** The composition (species) and structure (age/size classes and density of vegetation) of an ecosystem are important factors in determining its sustainability. A vegetation type that contains a range of age/size classes, a density which promotes plant vigor, and a representation of early seral species is likely to be sustainable long-term. Current conditions and trends in plant communities on the Forest indicate that some of these communities have substantially changed from historical condition.

**Pattern:** Pattern is an indicator of vegetative variation over the landscape. Pattern includes variations in composition and structure that are observed over a broad spatial scale. Patterns of vegetation are evaluated by comparison to their historic range, defined as 100-150 years ago (USDA Forest Service, 2000a). The current Forest Plan lacks desired conditions to restore or maintain historic vegetation patterns across all vegetation types.

**Disturbance:** Disturbance processes (observable functions) such as fires, droughts, floods, insects, and disease are common in nature. These agents of change and their interactions heavily influence the character of ecosystems. A step in conserving biodiversity is to maintain and/or emulate natural ecosystem processes. The Forest Plan does not reflect the role and variety of disturbance processes in the desired conditions.

**Historical Range of Variation:** The condition of the Forest prior to European settlement is used as the reference condition to derive the historical range of variation (USDA Forest Service, 2000a). Historical range of variation has been incorporated into the disturbance and pattern descriptions for each major vegetation type in the Forest's Draft Properly Functioning Condition assessment (USDA Forest Service, 1998b). Forest Plan desired conditions do not address historic range of variation.

The Forest Plan does not address properly functioning condition for sagebrush/grasslands, mountain shrub complex, mountain mahogany, gamble oak, tall forb, or pinyon-juniper communities. However, Forest resource specialists are currently using properly functioning condition for these other vegetation types, as it best reflects an ecological approach to management and is based on current resource conditions and understanding.



## **FOREST HEALTH - FOREST AND WOODLAND VEGETATION**

During the planning period, major impacts to forest and woodland vegetation have occurred due to bark beetle activity. Dense stands with a majority of large diameter trees, compounded by drought conditions, have contributed to the susceptibility of trees to beetle related mortality.

### **Engelmann Spruce**

The current spruce beetle epidemic occurring on the Wasatch Plateau is part of the largest recorded outbreak in the history of Utah (USDA Forest Service, 2004c). As of 2003, the spruce beetle outbreak had affected an estimated 80,000 acres on the Manti-La Sal National Forest. In the heavily infected stands, as much as 90 percent of the Engelmann spruce over 10 inches diameter at breast height (dbh) have died. Reforestation will be necessary on about 70 percent of affected acres to restore the desired level (50 percent) of spruce stocking in a timely manner (USDA Forest Service, 2001b).

The spruce beetle outbreak has caused significant tree mortality and changes in stand structure over a short period. These changes are affecting management objectives related to fire, recreation, wildlife habitat, threatened and endangered species, and water quality (USDA Forest Service, 1998b). Heavy fuel loadings have put municipal watersheds, wildland-urban interface communities, and young trees at high risk from potential wildfire. High snag densities around dispersed campsites present a safety hazard to the recreating public. The visual quality of the landscape has been impacted by the extensive presence of dead standing trees. Habitat has been lost or reduced for many late seral, forest-related, or dependent wildlife species such as blue grouse, a variety of forest owls, and the northern goshawk (USDA Forest Service, 1998a).

### **Subalpine Fir**

Subalpine fir continues to have major mortality attributed to the western balsam bark beetle and other agents (USDA Forest Service, 2002a, 2003a). As of 1995, mortality of subalpine fir exceeded growth (USDA Forest Service, 1998b). The effects of mortality in the subalpine fir are comparable to those listed above for Engelmann spruce.

Engelmann spruce and subalpine fir are often found in mixed stands at similar elevations. Because of spruce beetle and western balsam bark beetle outbreaks, the spruce-fir stands on the Manti Division have undergone a major shift from densely stocked mature/over-mature stands to poorly stocked stands of seedlings, saplings, and poles. Resulting stand composition and structure is variable and dependent upon the intensity of the outbreak and the presence of seral species, such as aspen.

### **Ponderosa Pine**

A mountain pine beetle outbreak (1985 to 1996) resulted in the loss of approximately 300 acres of large ponderosa pine on the Monticello Ranger District (USDA Forest Service, 2001b). On both the Moab and Monticello Ranger Districts, the mountain pine beetle populations currently remain slightly above endemic levels resulting in pockets of mortality. Much of the mature and old growth ponderosa pine was removed through harvest in the 1960s. Current structures are predominantly mid-aged, with dense understories and varying size classes (USDA Forest Service, 1998a). The age, size, density, presence of beetle activity, and drought stress of ponderosa pine stands contribute to their susceptibility to beetle infestation and mortality (USDA Forest Service, 2001b). The continued loss of large ponderosa pine negatively affects dependent species such as the Abert squirrel and moves the vegetation further away from desired age class distribution.

### **Pinyon Pine**

Loss of pinyon pine due to the Pinyon Ips beetle increased dramatically in 2003, particularly on the Monticello District (USDA Forest Service, 2004c). Dense pinyon-juniper stand conditions, stressed by

drought conditions, have increased the susceptibility of pinyon pine to infestation and subsequent mortality.

### **Mixed Conifer**

The mixed conifer stands contain a mix of age classes and species including Douglas fir, white fir, subalpine fir, spruce, or limber pine. As mixed conifer stands are typically uneven-aged and multi-storied, the present ladder fuels increase the risk for stand replacing fire. The exclusion of relatively frequent non-lethal surface fires has allowed shade tolerant firs to colonize the understory, shifting species composition towards late seral species. Timber harvest and stand improvement treatments are needed to reduce tree density and shift species composition away from shade tolerant true firs to shade intolerant species such as Douglas fir and aspen.

### **Aspen**

Historically, an estimated 338,008 acres of aspen forest existed within the Manti-La Sal National Forest. By comparison, only 158,866 acres (47 percent) are presently considered aspen forest, a 53 percent decline from historical condition (USDA-Forest Service, 1998b). The loss of seral aspen is affecting species composition, age class diversity, and ecological functions, such as forage and browse production, which are associated with developing aspen stands. Decadent (declining) aspen stands have become more prevalent, with conifers dominating many of these stands, nearly to the exclusion of aspen on many acres.

Overall, the objectives for regenerating aspen and/or removing conifer encroachment of aspen during the planning period have not been accomplished. A lack of merchantable material combined with the cost of road work precluded proposed units from being harvested. Many aspen units scheduled for prescribed fire were not treated due to weather conditions that provided few burn opportunities and a shortage of resources during severe fire seasons (D. Cote, personal communication). Due to the absence of timber harvest and/or fire, conifers continue to encroach on seral aspen stands, reducing their historic representation on the landscape. Efforts to regenerate aspen and restore seral aspen have produced mixed results. Prescribed fire has generally been successful; however, fire intensity is often not uniformly high enough to kill the entire aspen overstory for the best suckering response.

## **FOREST HEALTH - RANGELAND VEGETATION**

Rangeland studies show that the overall composition of desirable plant species and ground cover has increased over the years (USDA Forest Service, 2001b). Drought conditions have affected the growth and regeneration of rangeland plants from 1999 to present. Rangeland insect and disease activity are mostly at endemic levels. Black grass bugs are being observed over a larger area. Grasshoppers appear to be increasing in isolated areas (J. Healy, personal communication). Noxious weeds and invasive species are currently the greatest threat to rangeland health as they continue to replace native vegetation.

### **Noxious Weeds**

Monitoring showed 42,593 acres on the Forest were infested with noxious weeds in 2003. Musk thistle is presently found on about 38,505 acres. In 2003, 1,172 acres of noxious weeds were treated, 860 acres for Musk thistle. Nearly all known acres of yellow toadflax (95 acres), diffuse knapweed (40 acres), Dyer's woad (2 acres), dalmation toadflax (1 acre), and spotted knapweed (14 acre) were treated. Aggressive action is also being taken to control scotch thistle, white top, and Russian knapweed. Canada thistle is being monitored and treated but is difficult to control due to its association with riparian plant communities (Thompson et al, 2003). Current Forest Plan direction for noxious weeds focuses heavily on control, with minor emphasis on prevention (USDA Forest Service 1986, II-15, III-25).

### **Invasive Species**

Invasive species may be plants, animals, insects, or disease causing organisms. Cheat grass and Tamarisk, two nationally identified invasive plant species, have been identified on the Forest. Cheat grass has been sighted along many Forest roads and continues to expand, replacing native vegetation and altering historic fire regimes. Tamarisk is replacing native vegetation particularly along watercourses in the Dark Canyon Wilderness, with other colonies beginning to appear in South Cottonwood Canyon, Mill Creek, Dry Wash, Muddy Creek, and Ferron Canyon (R. Thompson, personal communication).

Invasive plants typically have a rapid growth rate, short life cycle, and abundant seed production, which allow them to expand at an alarming rate (Utah, State of. 2003). Due to the aggressive nature of invasive species, prevention, early detection, and containment are essential to their control and eradication. Forest rangeland specialists are currently recording known locations of invasive plant species for use in the development of an action plan. The Forest Plan does not address invasive species.

## **TIMBER MANAGEMENT**

### **TIMBER SUITABILITY**

National Forest Management Act (NFMA) regulations require that lands identified as not suited for timber production be examined at least every 10 years to determine if they have become suited (36 CFR 219.12(k)(4)(ii)). The Forest Plan revision process provides an opportunity to re-assess the suitability of lands for timber management to account for changes in economic feasibility, laws, regulations, and agreements that affect the uses of forested lands. Geographic Information Systems (GIS) technology and comprehensive soils and geology data have become available since the original suitability determination. This new data and technology will be used to re-evaluate and map all forested lands.

**Table 4. Suitable Timberland Classification by Timber Types as identified in the 1986 Manti-La Sal National Forest Plan.**

<b>SUITABLE TIMBERLAND CLASSIFICATION BY TIMBER TYPE</b>				
<b>Timber Type</b>	<b>Timberland Classification (M Acres)</b>			
	<b>Total</b>	<b>Unsuitable</b>	<b>Tentatively Suitable<sup>1</sup></b>	<b>Suitable<sup>2</sup></b>
Ponderosa Pine (PP)	105.6	3.7	101.9	51.4
Englemann Spruce (ES)	74.1	7.7	66.4	24.7
Subalpine Fir (AF)	36.8	3.7	33.1	3.4
Douglas-fir (DF)	31.4	3.1	28.3	12.8
Quaking aspen (AS)	154.6	16.4	138.2	44.6
Total	402.5	34.6	367.9	136.9

A 1999 land acquisition, consisting of 5,170 acres (12 tracts) on the Manti Division and 1,197 acres (8 tracts) on the San Pitch Division, has not been evaluated to identify the suitability of those lands for timber production.

<sup>1</sup> Tentatively suitable lands are forest lands that are available and physically capable of timber management.

<sup>2</sup> Suitable timberlands are that portion of the tentatively suited lands considered appropriate for timber management under a given alternative.

## **NATURAL REGENERATION AND REFORESTATION**

### **Conifers**

Data for reforestation projects before 1995 is sketchy and involves only a few acres of planting. Generally, natural regeneration in ponderosa pine (La Sal Division) is quite successful. Plantation survival studies for the first year have averaged over 90 percent; those for the third year are approximately 70 percent (USDA Forest Service, 2001b). During 2002, a ponderosa pine plantation was lost to the Hangdog wildfire on the Moab Ranger District. Current units have been monitored for animal damage from domestic livestock and gophers. Several units on the Manti Division contained enough damage from gophers for treatment to be applied during the summer of 2001.

### **Aspen**

Aspen regeneration treatments have been generally successful. However, browsing losses from domestic livestock, deer, and elk have precluded and/or limited the long-term success of these treatments in some areas. Experience shows that expansive aspen regeneration treatments are needed to withstand browsing losses from deer and elk. Aspen regeneration of limited small inclusions, such as those in the ponderosa pine on the La Sal Division, will likely require fencing to maintain aspen as a stand component (USDA Forest Service, 2001b). Protection for aspen regeneration is not presently identified as an appropriate practice under timber management activities as the damaging effects of deer and elk browsing on aspen regeneration treatments were not anticipated.

## **ALLOWABLE SALE QUANTITY (ASQ)**

The Allowable Sale Quantity represents the maximum volume a Forest may sell from suitable lands during each decade without exceeding the growth on those lands. Timber harvest may occur on lands other than suitable, but in that case, the volume produced will be incidental to the timber management objectives and not included in the ASQ.

The Forest Plan set the ASQ at 3.16 million board feet (MMBF) for sawtimber and 2.5 MMBF for other products, an average of 5.66 MMBF allowable annually. Table 5 displays the timber volume sold since inception of the Forest Plan.

**Table 5. Timber volume (all wood products, not just sawtimber) offered and sold since the inception of the Forest Plan.**

<b>FISCAL YEAR</b>	<b>TIMBER VOLUME SOLD (MMBF)</b>
1987	1.009
1988	2.640
1989	5.596
1990	22.135
1991	16.894
1992	3.594
1993	41.309
1994	7.816
1995	6.447
1996	12.192
1997	16.763
1998	2.070
1999	.246
2000	1.056
2001	2.973
2002	1.020
2003	1.396

Source: Periodic Timber Sale Accomplishment Reports (PTSAR).

As of 2000, the average annual sawtimber volume sold of 3.23 MMBF slightly exceeded the Allowable Sale Quantity for sawtimber, but much of this volume resulted from salvage harvest (Table 5) (USDA Forest Service, 2001b). Additionally, most of the fuelwood volume sold was harvested from areas that were not used in the calculation of ASQ (USDA Forest Service, 2001b).

By focusing forest management on the spruce beetle and pine beetle outbreaks to salvage dead trees and protect at-risk trees, sanitation/salvage harvest volume was substituted for 79 percent of the live, green ASQ volume between 1987 and 2000 (USDA Forest Service, 2001b). A large quantity of potential salvage volume of Engelmann spruce beetle kill remains standing on the Manti Division. Additionally, large fires burned over 16,000 acres of timber and brush during 2002-2003. The Nizhoni Salvage Sale, offered to salvage 800 acres of fire-killed ponderosa pine, sold in 2004. Aspen will continue to be a minor component of ASQ as selected aspen and spruce-fir stands are treated for the regeneration of aspen.

The incorporation of sensitive species management, such as the conservation strategy for the northern goshawk, has the potential to affect ASQ given specific timber management recommendations for species composition, arrangement and density, size class distribution, and harvest limitations (includes treatment unit size and timing restrictions). The availability of helicopter and cable harvest systems and management direction for roadless areas also has the potential to affect suitability and ASQ.

## **LONG-TERM SUSTAINED YIELD CAPACITY**

The Long-Term Sustained Yield Capacity represents the maximum level of sustainable timber production that suitable lands are capable of producing.

The volume of sawtimber trees on non-reserved timberland (includes all but 3 percent of timberland on the Forest) is estimated to be 4.4 billion board feet. Engelmann spruce and subalpine fir account for 54 percent of the total sawtimber (USDA Forest Service, 1998b).

Net annual growth on all forest lands of the Manti-La Sal National Forest is estimated to be about 70.109 million board feet or 12.3 million cubic feet (USDA Forest Service, 1998b).

Net growth is the difference between gross growth and losses due to mortality. According to data collected from 1993-1995, the net annual growth of sawtimber on non-reserved timberlands was 50.301 million board feet. Annual mortality of sawtimber was 64.736 million board feet per year (USDA-Forest Service, 1998b). Subalpine fir accounted for over 50 percent of the mortality; mortality of Engelmann spruce has affected approximately 80,000 acres. The loss of the majority of mature spruce on the Manti Division, combined with an inadequately stocked understory, has invalidated Forest Plan growth and yield and ASQ projections. (Note: These figures are based on field inventory data completed in 1993. That data does not include continued losses to insect and disease.)

## **FIRE AND FUELS MANAGEMENT**

The 1986 Forest Plan focused fire management direction on suppression, activity fuels reduction, and improvement of forage. Fire exclusion has changed the vegetation patterns, structure, and composition of the Manti-La Sal National Forest (USDA Forest Service, 1998a). These unnatural vegetative conditions contribute to increased fire severity and increased risks to communities and ecosystems. Extreme weather, drought conditions, fuel loadings, and stand structure and density contributed to increased wildfire size and intensity in 2002 and 2003.

The current Forest Plan was amended by the Utah Fire Amendment to maintain and restore ecosystems through prescribed and wildland fire use (USDA Forest Service, 2001a). The amendment also included

## ***Preliminary Analysis of the Management Situation***

direction for suppression of unwanted wildfire in areas of important social and economic values and guidance for hazardous fuels reduction.

The Utah Fire Amendment was initiated to update existing forest plans in Utah to be consistent with National Fire Management Policy. Since that time, new legislation and policies have been introduced such as:

**The National Fire Plan (2001)** - A tactical, interagency plan to respond to severe wildland fires, reduce their impacts on communities, and assure sufficient firefighting capabilities for the future.

***A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment*** (USDA, USDI 2001)- A comprehensive approach to the management of wildland fire, hazardous fuels, and ecosystem restoration and rehabilitation on federal and adjacent state, tribal, and private forest and rangelands.

**The Healthy Forest Initiative (2000)**– The Healthy Forests Initiative provided tools, such as new NEPA categorical exclusions and appeals rule amendments, to expedite administrative procedures for hazardous fuel reduction and ecosystem restoration projects.

**The Healthy Forests Restoration Act (2003)** – The Healthy Forests Restoration Act provided for improved statutory processes for hazardous-fuel reduction projects on certain types of at-risk National Forest and Bureau of Land Management lands. The Act also provides direction to help reduce hazardous fuels and restore healthy forest and rangeland conditions on lands of all ownerships (USDA Forest Service-USDI BLM, 2004).

The Forest Plan has not been reviewed or updated for consistency with these new policies (Intermountain Region, 2002).

Due to a shift in management direction and philosophy, fire ecology has become fundamental to the fire/fuels management program since the implementation of the Forest Plan. Today, the Forest Service recognizes fire as a natural process and as a tool to assist in restoring and maintaining the properly functioning condition of ecosystems. Fire's historic role in the development and maintenance of fire-dependent ecosystems is not acknowledged in the current Forest Plan desired conditions.

## **FUELS MANAGEMENT**

### **Fuels Assessments**

A recent, rapid assessment was completed which mapped the fire regime and condition class of Forest lands. The focus of the assessment was to identify those lands at high risk of ecologically destructive wildland fire (defined as condition classes 2 and 3, fire regime I, II, and III) (M. Crawley, K. Soper, 2004). This information on fire regime and condition class is preliminary and, once refined, will be used to identify high priority treatment areas and develop goals and objectives to improve the condition class of those areas. The Forest Plan currently does not have direction relating to fire regime and fire condition class.

### **Fuels Treatments**

Current Forest Plan direction authorizes the full range of fuel reduction methods, consistent with forest and management area emphasis and direction to reduce hazardous fuels (USDA Forest Service, 2001a). Vegetative, mechanical, manual, prescribed fire, and wildland fire use treatments continue to be implemented across the Forest to reduce hazardous fuels accumulations and to restore and maintain ecosystems.

Thousands of acres, mostly rangeland, have been treated with prescribed fire; however, mitigation measures for resource protection (such as protection of TES species), limited burn opportunities, and a lack of qualified personnel have limited prescribed fire use. Prescribed fire is used to accomplish resource management objectives such as reducing fuels, aspen regeneration, and range and wildlife habitat improvement (USDA Forest Service 1986, III-28, 43). Prescribed fire remains as one of the primary tools used to manage ecosystems.

### **Wildland-Urban Interface**

Since implementation of the Forest Plan, more homes and other structures have been built near and around the Manti-La Sal National Forest (known as the wildland-urban interface). A fire protection challenge has developed, as people, homes, and structures continue to occupy the wildland-urban interface and hazardous fuels continue to accumulate. Wildland fire activity in recent years has increased public awareness of the need to reduce hazardous fuel conditions in this interface zone.

The Forest has accomplished fuel reduction treatments for several wildland-urban interface areas. Mechanical and hand treatments are used to reduce stocking, eliminate ladder fuels, and reduce slash and ground fuel accumulations through cutting, piling, and burning. Periodic follow-up activities are necessary to maintain the effectiveness of previous treatments in the wild-urban interface. The current Forest Plan does not address vegetation or fuels management within the wildland-urban interface.

### **Restoring Fire to Fire Dependent – Fire Adaptive Ecosystems**

Previous treatments in some ponderosa pine ecosystems have been partially effective, however mortality was more extensive than anticipated due to heavy fuel concentrations, including ladder fuels. Thick duff layers, ladder fuels, and the susceptibility of young seedling and sapling size trees to fire limits the ability to uniformly thin using fire in ponderosa pine (USDA Forest Service 2001b, 52).

Mechanical treatments will likely be needed to eliminate ladder fuels and reduce fuel loadings before the reintroduction of fire into some fire dependent ecosystems, especially where social or economic values may restrict the use of fire as the sole tool.

### **Regenerating Aspen with Fire**

Recent findings from forest inventory and analysis publications indicate that aspen communities in Utah are 60 percent less abundant than would have been the case historically. Efforts to regenerate aspen and restore seral aspen have produced mixed results. Prescribed fire has been generally successful. However, fire intensity is often not uniformly high enough to kill the entire aspen overstory for the best suckering response. A mix of mechanical treatments and prescribed fire are likely needed to obtain maximum aspen regeneration.

## **WILDLAND FIRE USE**

The Manti-La Sal National Forest Fire Management Plan identifies areas where wildland fire use is allowed, and the circumstances under which wildland fire is allowed to burn.

The current Forest Plan prohibits wildland fire use in administrative, developed recreation, summer home, and designated communication sites; sensitive watersheds; oil, gas, and mining facilities; above-ground utility corridors and high-use travel corridors. Additional areas, such as the wildland-urban interface, where wildland fire use on the Manti-La Sal National Forest may not be appropriate have not been assessed.

## **WILDLAND FIRE**

Fire-related mortality has generally increased due to high fuel loadings and the prevalence of ladder fuels. The 2002 Nizhoni Fire affected approximately 1,900 acres of ponderosa pine. Approximately

1,100 acres burned at a severe intensity (most trees are dead or severely damaged). Years of fire suppression has permitted litter and duff to accumulate to levels that allow fire to burn hotter and longer, while ladder fuels have allowed fires to reach tree crowns. The increased heat and duration of fire kills fine roots and tree cambium, resulting in mortality, even in the typically fire-resistant, mature ponderosa pine.

Fire weather, in combination with drought conditions, fuel loadings, and stand structure and density, contributed to increased wildfire size and intensity in 2002 and 2003 (Table 6).

**Table 6. Forest Wildfire Season Summary for 2002-2003.**

<b>MANTI-LA SAL NATIONAL FOREST WILDFIRE SEASON SUMMARY FOR 2002-2003</b>		
<b>Fire Name</b>	<b>Year</b>	<b>Acres</b>
Nizhoni	2002	2,354
North Horn Mountain	2002	1,022
Hang Dog	2002	6,000
Hammond	2002	3,800
Woodenshoe	2003	2,710
Total Acres		15,886

Wildland Fire Suppression direction was amended through the 2000 Utah Fire Amendment to give firefighter and public safety the highest priority during a wildfire. The Utah Fire Amendment also stated that a full range of suppression tactics is appropriate to consider forest-wide, consistent with forest and management area emphasis and direction.

## **RANGELAND MANAGEMENT AND LIVESTOCK GRAZING**

### **RANGELAND CAPABILITY AND SUITABILITY**

Rangeland capability addresses the ability of the land to support livestock; suitability addresses whether or not livestock grazing should occur and whether other uses should take precedence.

The 1986 Forest Plan did not differentiate between capable<sup>3</sup> and suitable<sup>4</sup> rangeland acres or between capable rangeland acres for cattle and capable rangeland acres for sheep as per current classification systems of Forest Service manuals and handbooks. In addition, the original suitability analysis did not have the data and analytical capability now available in the Forest's geographic information system. Forest rangeland specialists have determined that the existing rangeland suitability determination is still valid.

#### **Rangeland Condition and Trend**

Long-term range trend studies occur on all grazing allotments and are focused on areas where livestock grazing is taking place. Trend studies are used to monitor and determine the long-term changes of plant composition, forage production, ground cover, and soil stability. When compared across allotments, this data provides rangeland trend information on a broader scale. In recent years, rangeland monitoring has been expanded to include more vegetation types (J. Healy, personal communication). Generally, data from these studies show the composition of desirable plant species and ground cover has increased

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<sup>3</sup> Rangeland capability is defined as the potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity, as determined by current range resource and site conditions.

<sup>4</sup> Rangeland suitability is determined by the appropriateness of applying certain resource management practices to a particular area of "capable rangeland," as determined by an analysis of the economic and environmental consequences.



(USDA Forest Service, 2001b). Table 7 provides a summary of rangeland conditions as of July 2003 (USDA Forest Service, 2004b).

**Table 7. Summary of range conditions for riparian acres and total suitable acres (July 2003).**

SETTING TYPE	ACREAGE CATEGORY	TOTAL ACRES
<b>Riparian Acres within Grazing Allotments with Range Vegetation Management Objectives</b>	Undetermined condition	3,257
	Estimated not meeting or moving toward Forest Plan objectives	475
	Estimated meeting or moving toward Forest Plan objectives	2,501
Total Riparian Acres		6,233
<b>Range Acres within Grazing Allotments with Range Vegetation Management Objectives</b>	Undetermined condition	504,434
	Estimated not meeting or moving toward Forest Plan objectives	68,017
	Estimated meeting or moving toward Forest Plan objectives	411,259
Total Range Vegetation Acres		983,710

## LIVESTOCK GRAZING

### Allotment Carrying Capacity

The 1986 Forest Plan identified 651,481 acres of suitable range for livestock consisting of 144 grazing allotments, 482 permits, and 175,334 permitted animal unit months (AUMs). Permit obligation was estimated to be 20 percent higher than carrying capacity at the time of Forest Plan implementation. Currently, the grazing program consists of 651,481 acres of suitable range, 120 allotments, 226 permits, and 146,606 permitted AUMs (USDA Forest Service, 2004b). The number of permitted AUMs declined by 28,728 AUMs between 1980 and 2004. This reduction occurred as capacities were adjusted through evaluation of long-term trend and use studies, range improvement efforts, adjustments of livestock permits, and overall improved range management systems and practices. The reduction in the number of allotments has resulted from the consolidation of allotments.

Grazing use has been considerably less than permitted. Actual grazing was reduced to 93,918 AUMs in 2003, largely due to prolonged drought conditions from 1999-2003 (USDI Geological Survey, 2003; USDA Forest Service, 2004b).

An accelerated effort to re-evaluate each allotment has taken place during the past ten years (P.L. 104-19). Each re-evaluation includes updated information regarding allotment studies and an analysis of capacities. This information has contributed to aligning permitted numbers to carrying capacity (USDA Forest Service, 2001b). Currently, permit obligations and estimated grazing capacity are close to balancing (USDA Forest Service, 2001b).

### Allotment Management for Livestock

Field inspections are typically done on the majority of allotments each year to ensure permittees are following the allotment management and annual operating plans. The focus for inspections has been on those allotments currently being re-evaluated. Approximately 75 percent of inspected allotments are in

compliance, and on most of the others, appropriate action has been taken by the permittee to correct deficiencies. On about 1 to 2 percent of allotments, some permit action is initiated in order to correct problems (USDA Forest Service, 2001b).

Forest rangeland specialists have recommended that proper use criteria be expanded to include the high intensity, short duration grazing management system. This grazing system is based on current actual use trials and provides flexibility to best meet the physiological needs of rangeland plants. It is based on time (duration, maximum of two weeks) and timing (a specific area would not be grazed at the same time of the season the following year). This grazing system is another tool that range managers can use to meet grazing and ecosystem management objectives.

## **SPECIAL ECOSYSTEMS/COMMUNITIES**

The Forest Plan did not specifically identify any special ecosystems or communities. These ecosystems and communities include non-stream or non-lake related wetlands (seeps, bogs, weeping walls), riparian areas, aquatic systems, aspen, and special plant communities/habitats. Some of these ecosystems and communities include unique plant communities and threatened, endangered, and sensitive species habitat.

Special ecosystems<sup>5</sup>/communities<sup>6</sup> warrant special consideration based upon:

- **Rarity** - The community may be uncommon or poorly represented within the forest or ecological subunit, perhaps representing a substantial range extension for a single species or suite of species.
- **Interdependence** - The area may provide habitat for several rare species or may be important to the preservation and recovery of a federally listed species.
- **Risk** - The integrity of the system may be in jeopardy from present, past, or future land uses.
- **Pristine or "Relict" Conditions** - Areas having particularly pristine conditions or serving as relict areas are valuable for purposes of comparison. Such areas may be protected by designation as research natural areas.

Although policy regarding the management of ecosystems and communities has not changed since implementation of the Forest Plan, how scientists, land managers, and the public view these systems has changed considerably. In particular, there is a greater understanding of the need to consider ecological/biological associations and processes at various scales and to provide sustainable conditions by providing a mix of seral stages across the landscape, which not only meet management objectives but can be sustained through time and within the historic range of variability.

### **Riparian Areas, Wetlands, and Aquatic Ecosystems**

The unique characteristics of stream or lake related riparian areas, wetlands, and aquatic ecosystems are addressed under the Watershed Health section.

### **Aspen**

Quaking aspen is widely distributed throughout the Forest and is very important to biodiversity, as it is second only to riparian areas for species diversity and abundance. Aspen is valued for its watershed protection, water yield, luxuriant undergrowth, forage production, favored wildlife habitat, and rich biodiversity (Bartos and Campbell, 1998). For more information on aspen, see the Vegetation Section.

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<sup>5</sup> Ecosystem – Term is used to describe broad features that represent a complex of plant and animal communities.

<sup>6</sup> Communities – Term is reserved for discussion of associations at a finer scale where areas are much more homogeneous with respect to species composition and environmental factors.

### **Big Game Habitat**

The Manti-La Sal National Forest has approximately 188,859 acres classified as general deer/elk winter range and approximately 17,872 acres classified as key deer/elk winter range. These acres include a variety of vegetation types including mountain brush, shrubs, sagebrush/grass, oak/maple, and perennial and seeded grass areas, at elevations at or below 7,000 feet.

Potential threats to big game habitat include damage to soil and vegetation from unauthorized off-highway vehicle use, the decline of sagebrush communities, invasive plant species, noxious weeds, loss of aspen, and the effects of oil and gas development (B. Bates, personal communication).

### **Special Plant Communities/Habitats**

#### **Tall Forb Plant Communities**

Historically, tall forb communities were common throughout the mountains and high plateaus (above 8,000 feet) where annual precipitation exceeds 35 inches. These sites are characterized as having deep, well-drained productive soils. Tall forb communities adjacent to forest and shrubland communities are valuable habitat for many wildlife species such as raptors, small mammals, birds, and deer and elk.

The species composition of many tall forb communities was lost years ago due to improper livestock grazing which resulted in the erosion of the deep, fertile soils that supported these communities. Due to the change in soil productivity on these sites, a shift in species composition to short forbs, grasses, and tarweed occurred. Tarweed is a native plant, but undesirable due to its tendency to dominate tall forb sites to the exclusion of other native species. Mechanical and chemical treatments to control tarweed and re-establish desirable species have produced mixed rates of success, mostly depending on the soil chemistry and soil productivity of the site. Some tall forb communities are displaying signs of recovery with an increasing representation of species associated with the tall forb plant community, including grasses and forbs. Existing tall forb plant communities appear to be stable.

#### **Old Growth Forest Fragments**

Currently, the spruce-fir and ponderosa cover types are deficit in their representation of mature and old growth age classes. On the Manti Division, the majority of mature/old growth Englemann spruce has been lost in areas affected by the spruce beetle outbreak. On the La Sal Division, many mature and over-mature ponderosa pine were harvested in the 1960s to thin stands in response to increased mountain pine beetle activity (USDA Forest Service, 1991). Beetle activity has also reduced Douglas fir and subalpine fir mature components.

The age class distribution for aspen and mixed conifer cover types are highly skewed with an over-representation of mature and over-mature age classes due to fire suppression and/or lack of management.

## **TERRESTRIAL WILDLIFE**

The Manti-La Sal National Forest contains habitat for a wide variety of terrestrial wildlife species, supporting biological diversity and conservation of threatened, endangered, and sensitive species. The Forest ranks first among the six Utah National Forests in potential to produce big game, which includes elk and mule deer. Black bear; cougar; turkey; snowshoe hare; cottontail rabbits; and blue, sage, and ruffed grouse provide additional hunting opportunities.

Implementation of the Forest Plan has resulted in a species by species management approach, generally using short time frames rather than addressing issues at larger spatial and temporal scales. Although the current Forest Plan addresses many of the key indicators (e.g., management indicator species and species at risk) of biological diversity, these indicators are largely described and analyzed as separate functional

entities. There is little information as to how these indicators interact with one another and with natural processes, particularly at the Forest-level scale.

The Forest condition that best provides for wildlife diversity is one that contains various structural stages in a well-distributed mosaic of vegetation types (USDA Forest Service, 2000b). A diversity of habitats is present on the Forest, however the distribution and abundance have changed over time due to fire suppression and general Forest management.

Fewer than half the acres scheduled for habitat improvement in the Forest Plan have been treated. As a whole, the improvements that were accomplished moved the Forest towards the desired conditions for fish and wildlife as outlined in the Forest Plan.

## **MANAGEMENT INDICATOR SPECIES**

The National Forest Management Act (NFMA) regulations direct national forests to identify management indicator species (MIS), which are, "...selected because their population changes are believed to indicate the effects of management activities" (CFR 219.19 (a) (1)). By monitoring and assessing habitat conditions of indicator species, managers can estimate effects on other species with similar habitat needs. Management indicator species in the current Forest Plan were selected because their habitat requirements encompassed a diverse range of conditions. However, monitoring and management experience with MIS since Forest Plan implementation indicate that some species may not be the best indicators for the habitats they represent. Groups of species that use similar habitats may be more useful as management indicators than individual species. Inventory work for management indicator species (MIS) has often been limited to sensitive species surveys needed for project specific work. The Forest has used data collected by the Utah Division of Wildlife Resources (UDWR) to monitor elk, mule deer, and to some extent golden eagles. Based on the monitoring data and a greater knowledge of the ecosystems present on the Forest, MIS should be revised to better represent the habitat types and the impacts, positive and negative, that management could have on them.

The current Forest Plan listed five MIS. The following table lists the current Forest Plan MIS and the specific habitat types they represent.

**Table 8. Management Indicator Species (MIS) for the Manti-La Sal National Forest.**

MANAGEMENT INDICATOR SPECIES	HABITAT TYPES/VEGETATION
Big game (mule deer and elk)	Early to mid-seral aspen, conifer, mountain brush, sagebrush, and grass
Northern goshawk *	Old growth, Douglas-fir, mixed conifer, and aspen
Macro invertebrates	Water quality indicator, fish habitat indicator
Abert squirrel	Ponderosa pine
Golden Eagle	Various vegetation types

\*Northern goshawk replaced the blue grouse as an MIS through a 2003 Forest Plan amendment.

### **Mule Deer and Elk**

Currently, elk herds are below identified population objectives due to a UDWR planned management decision in response to extended drought conditions. The population objective is 12,000, while the 2004 population estimate is about 8,800 elk (B. Bates, personal communication).

The current deer population objective for the Manti-La Sal National Forest is 38,000; the estimated population is about 24,000 (B. Bates, personal communication). Deer and elk populations are limited due to a lack of winter range on the Manti Division and summer range on the La Sal Division.

Monitoring conducted by the UDWR in winter range areas indicates stable to decreasing vegetative trends for most sites. Winter range is being impacted primarily by mineral development, unauthorized off-highway vehicle use, loss of sagebrush communities, and the introduction of noxious weeds, causing a general loss of favored browse and grass species in some areas. Drought conditions continue to impact fawn recruitment and survival throughout southeastern Utah.

Herd composition and aerial counts for deer and elk provide good short-term data for basing annual harvest recommendations. Vegetative trend data provides information for determining the long-term objectives of vegetation management to provide the desired quality/quantity of forage to achieve herd objectives. In general, trend assessments are stable for soils, browse, and herbaceous understory. In the short-term, separating the influences of weather from the influences of habitat management is difficult.

### **Northern Goshawk**

Blue grouse were originally monitored to indicate the condition of mature mixed conifer. In the early 1990s UDWR, which had been monitoring blue grouse populations, discontinued collecting this data (USDA Forest Service 1986, II-33). A Forest Plan amendment was approved in 2003 replacing blue grouse with the northern goshawk as the MIS for mature conifer/mixed conifer forest. The Forest has inventoried and monitored for northern goshawk since 1992.

Northern goshawks have become a species of concern since being listed as a Forest Service sensitive species in 1991. Surveys of potential habitat are conducted on the Forest in association with proposed vegetative management projects. Several new nest sites have been identified and known nest sites are checked annually. Data indicates there is a stable population of northern goshawks on both the Manti and La Sal Divisions of the Forest. In 1999, ten of twenty, or 50 percent of the territories monitored were active. Surveys have primarily focused on nest occupancy rather than productivity. Modifications in Forest management activities, including protection of nest stands and temporal and spatial restrictions to mitigate potential disturbance from nearby activities, have been used with success.

### **Macroinvertebrates**

The Forest started monitoring macroinvertebrates after the flood and landslide events of 1983 and 1984. Most stations were sampled in 1984. The rotation of sampling (every five years) between ranger districts began after 1984.

The purpose of macroinvertebrate monitoring is to evaluate water quality and determine the diversity of aquatic life the site is able or has the potential to support (USDA Forest Service, 2001b). Macroinvertebrates serve as natural monitors of management activities within each major watershed. Macroinvertebrate monitoring does not provide the data that could be used for population trend monitoring for a MIS.

Aquatic macroinvertebrate conditions across the Forest vary from stream to stream. Some communities have improved since 1992 while others have not changed or have decreased (USDA Forest Service, 2001b).

### **Golden Eagles**

The UDWR, in concert with several coal mining companies, annually inventory areas on the eastern side of the Manti Division where golden eagles are known to nest. In addition, Forest wildlife biologists monitor nests located near project areas.

Each pair of golden eagles occupies a territory containing from one to seven nests. Eagles generally return to the same territory year after year. Active nests have declined; this is thought to be due to the drought and the reduction of prey base. Prey species such as jackrabbits, cottontail rabbits, and prairie

dogs are showing a decline in numbers. Although this is assumed to be, in part, a situation where numbers are cyclic, drought has played a significant role (Colt, personal communication, 2004).

Golden eagle numbers are better on the Manti-La Sal National Forest than in lower elevations off forest, which again seems to be related to drought and reduction in prey base, given the fact that the higher elevations received more moisture than the lower elevations (Colt, personal communication, 2004).

### **Abert Squirrel**

Abert squirrel is the management indicator species most directly dependent on the ponderosa pine habitat located on both the Moab and Monticello Ranger Districts. Since the implementation of the Forest Plan, 2,049 acres of ponderosa pine have been inventoried on the Monticello Ranger District near Gooseberry Guard Station. Three percent of this area contains mature ponderosa pine, which is adequate to maintain Abert squirrel if it is dispersed in clumps throughout the vegetation type. The clumps with interlocking crowns are necessary for nesting. Additional monitoring of the juxtaposition of mature ponderosa pine is needed to better evaluate Abert squirrel habitat.

Abert squirrels have also been located in Geyser Pass, Old La Sal, and both the north end of the La Sal Mountains and the Colorado portion of the Moab District (H. Musclow, personal communication). While these are rare sightings, the primary population exists around Buckeye Reservoir and Carpenter Ridge where it seems to be stable and breeding.

Recently, there has been a decline in Abert squirrel populations. A possible explanation for the decline is the current drought situation in southeastern Utah (Utah State Division of Water Resources, 2003). Precipitation is essential for the formation and maturation of ponderosa pine ovulate pinecones and seed, and moisture is necessary for hypogenous fungi to form and grow. Both of these food sources are highly nutritious for Abert squirrels (Pederson, Aurelia and Jordan, 2003).

## **THREATENED, ENDANGERED, AND SENSITIVE PLANT AND ANIMAL SPECIES**

When the Forest Plan was implemented, the bald eagle and peregrine falcon were the only two federally listed species on the Forest (both listed as endangered). Since that time, the bald eagle has been downgraded from endangered to threatened (Federal Register, 1995), and the peregrine falcon removed from the threatened and endangered list (Federal Register, 1999b). Current threatened, endangered, or sensitive plant and animal species found on or adjacent to the Forest are listed in Table 9 and Table 10.

**Table 9 Threatened, Endangered, and Sensitive Animal Species on or adjacent to the Manti-La Sal National Forest.**

<b>SPECIES</b>	<b>FEDERALLY LISTED THREATENED or ENDANGERED</b>	<b>FOREST SERVICE SENSITIVE</b>
<b>Mammals</b>		
Spotted bat	-	X
Western big-eared bat	-	X
<b>Birds</b>		
Bald eagle	Endangered	-
Mexican spotted owl	Threatened	-
Greater sage grouse	Threatened	-
Peregrine falcon	-	X

SPECIES	FEDERALLY LISTED THREATENED or ENDANGERED	FOREST SERVICE SENSITIVE
Southwestern willow flycatcher	-	X
Flammulated owl	-	X
Three-toed woodpecker	-	X
Northern goshawk	-	X
Yellow-billed cuckoo	Candidate	
<b>Amphibians</b>		
Spotted frog	-	X
<b>Fish</b>		
Bonytailed chub*	Endangered	-
Humpback chub*	Endangered	-
Colorado pikeminnow*	Endangered	-
Razorback sucker*	Endangered	-
Colorado cutthroat trout	-	X
Bonneville cutthroat trout	-	X

\*The bonytailed chub, humpback chub, Colorado squawfish, and razorback sucker are found in the Colorado and Green River, but not on the Manti-La Sal National Forest. The Wyoming Office of Ecological Services, US Fish and Wildlife Service, has advised that, "if proposed actions will lead to water depletion [consumption] in the Colorado River System, the Forest should include these species in their evaluations [of proposed projects]." The same approach has been accepted in northern Utah.

**Table 10. Threatened, Endangered, and Sensitive Plant Species.**

SPECIES	FEDERALLY LISTED THREATENED or ENDANGERED	FOREST SERVICE SENSITIVE
<i>Allium geyeri chatterleyi</i>	-	X
<i>Androsace chamaejasme carinata</i>	-	X
<i>Aquilegia flavescens rubicunda</i>	-	X
<i>Astragalus montii</i>	Threatened	-
<i>Cryptantha creutzfeldtii</i>	-	X
<i>Cymopterus beckii</i>	-	X
<i>Erigeron abajoensis</i>	-	X
<i>Erigeron carringtonae</i>	-	X
<i>Erigeron kachinensis</i>	-	X
<i>Erigeron mancus</i>	-	X
<i>Hedysarum occidentale</i> var. <i>canone</i>	-	X
<i>Lomatium latilobum</i>	-	X
<i>Salix arizonica</i>	-	X
<i>Senecio dimorphyllus</i> var. <i>intermedius</i>	-	X
<i>Senecia musiniensis</i>	-	X
<i>Silene petersonii</i>	-	X
<i>Spiranthes diluvialis</i>	Threatened	
<i>Trautvettria caroliniensis</i>	-	X

In 1995, the six Utah National Forests completed a Biological Assessment for all species that had been federally listed since their forest plans were completed (Rodriguez, 2003). It was determined "that implementation of forest plan standards and guidelines in Utah combined with Section 7 consultation at the project-specific level would not allow adverse effects to species viability on any threatened or endangered species known or suspected to occur on National Forest System lands in Utah." In the

## ***Preliminary Analysis of the Management Situation***

assessment, it was determined that standards and guidelines in forest plans were for the most part general and covered any listed species at all times.

Forest budgets and priorities have precluded a great deal of work from being done in habitat maintenance and improvement for TES species. Most accomplishments have been achieved through coordination and mitigation on other Forest projects such as timber sales, recreation developments, oil and gas development, and grazing allotment plans.

The addition of species to the TES list is due not to management practices on the Manti-La Sal National Forest but rather to an increase in knowledge and understanding of species either throughout their range or through range-wide negative cumulative effects. Likewise, the downlisting of the bald eagle and the delisting of the peregrine falcon are due to increased numbers and habitat improvement over their entire range (although habitat protection through coordination and mitigation on Forest projects has helped protect habitat).

Conservation agreements and strategies have been completed and approved for the Colorado and Bonneville cutthroat trout, northern goshawk, Canada lynx, and Arizona willow flycatcher. Clay phacelia (*Phacelia argillacea*), an endangered plant species, also has an approved recovery plan.

### **Sensitive Species**

When the Forest Plan was approved, the Forest Service sensitive species program was in its early stages and did not refer to specific species. Similarly, the State of Utah did not have a listing of sensitive species. In December 2003, the UDWR released the Utah Sensitive Species List. The purpose of this list is "to identify those species in the State that are the most vulnerable to population and habitat loss." Species on this list may be federally listed, a candidate for listing, a Forest Service sensitive species, or not fall into any of these categories. Species that do not fall under the umbrella of the Endangered Species Act or Forest Service sensitive species policy have no protection under these regulations but are considered species of concern with added emphasis in Forest activities.

### **Raptors**

Aesthetically raptors are highly regarded by both land managers and the public. Raptors (birds of prey) as a group are considered migratory birds and are protected wildlife. They are a widely accepted indicator of environmental quality due in part to their position at the top of the biological food chain. As such, federal and state protection is provided for raptors and their habitat through various legal mandates.

The status of raptors can reflect either numbers or inherent biological characteristics such as sensitivity to environmental conditions. Currently, the status of raptors in Utah is uncertain (USDI Fish and Wildlife Service, 2002). Certain life history characteristics, including typically long life spans, slow reproductive rates, and specific habitat requirements for nesting and foraging make raptor populations particularly vulnerable to disturbances and may retard recovery of some populations (USDI Fish and Wildlife Service, 2002). The current Forest Plan does not provide objectives for habitat management or protection measures for raptors other than northern goshawk.



## SOCIAL ECONOMIC COMPONENTS

### SOCIAL AND ECONOMIC CONDITION

The “Economic and Social Setting” in the 1986 Forest Plan primarily focused on communities and demographics surrounding the Forest. The Forest Plan contains very little discussion relative to the social and economic impacts of management activities. The Final Environmental Impact Statement (FEIS) for the Forest Plan addressed the social and economic impacts of the alternatives considered.

The State of Utah, Office of Planning and Budget, recently completed *People and the Forests: Social-Economic Assessment Tools and Data for Forest Plan Revision*, a social and economic assessment that will be used during the revision process (Utah GOPB, 2004). During this study, county planning documents (County Master Plans, Economic Development Plans, Tourism Plans, Water Conservancy Plans, etc.) were analyzed for Forest related issues that should be considered during the planning process.

The Manti-La Sal National Forest lies within Carbon, Emery, Grand, Juab, San Juan, Sanpete, Sevier, and Utah counties in Utah and Montrose and Mesa counties in Colorado.

#### **Carbon County**

Carbon County’s population remained nearly unchanged between 1990 and 2000, but demographic projections made by the State show a modest growth rate for the next three decades as well as an aging population. The county has experienced population booms and busts in the past, primarily related to mining employment. The county’s median household and per capita income levels, also tied to mining employment, are among the highest of the rural counties, often comparable to those of the State as a whole, which is dominated by higher paying urban industries.

While farming and ranching were the basis for settlement and the early economy, coal mining became the major catalyst for development in both Carbon and Emery counties. The region experienced a rapid economic ascent with the growth of the mining industry followed by an equally rapid decline as the mining sector decreased sharply from 1980 to the present. Mining is projected to continue to decline as a proportion of the economy although ongoing efforts to develop the mining economy are starting to create new jobs. Grazing is still important to some residents, and agricultural production is directly linked to public lands grazing.

#### **Emery County**

Emery County population counts have fluctuated slightly up and down over the last two decades, but projections are for slow annual growth over the next thirty years. Historic populations trends can be closely attributed to the state of the County’s mining industry. Emery County’s population is aging and is expected to continue along this trend.

Livestock and farming were the mainstays of Emery County’s economy for much of its history. The opening of large coal mines and the construction of large power plants in Castle Dale and Huntington in the 1970s changed the economy significantly, and the population grew sharply. High wages in this sector initially created high average incomes, but depressed markets for coal and coalbed methane, along with improvements in mining technology, have slowed or postponed this sector for some time. As a result, unemployment has remained higher than that of the State since 1990. The county still contains extensive natural resources that could be tapped, but the jobs produced from new mining activity may be at a similar level as those replaced by technology.

### **Grand County**

Grand County is situated on the Colorado Plateau, which has been eroded into huge canyons that make it a rugged but scenically spectacular region. Its remoteness and aridity attract few settlers, bringing less than 5 percent of the County's land into private ownership.

The early history of Grand County is of small family farms, orchards, and livestock operations, followed by several decades of mining for potash and uranium. After mining peaked in the early 1980s, the population and economy declined. Spectacular scenery and recreation on public lands have put Moab "on the map." The designation of several national parks and monuments began a tourism economy that has grown steadily to become the primary driver of economic growth today. Vacation and retirement homes have closely followed, creating an affordable housing shortage. Tourism has its own booms and busts and often does not sustain families or year-round employment. The county is seeking ways to diversify its economy to address these trends.

### **Juab County**

As Juab County becomes more of an extension of the Wasatch Front, many people are relocating their families to Juab County while working in Utah County. Many other Juab County residents have found employment in Millard County's power plants and in Sanpete County's mines. The county recently estimated that 40 percent of its residents are commuting to employment in other counties. These trends have spurred a population surge in the last decade, swelling school enrollments and boosting average education levels, unlike many other rural areas, where populations are aging and young families are moving out. Because the eastern part of the County is within a thirty-minute drive from the urbanized Wasatch Front, regional forces increasingly influence the local economy. Agriculture and mining historically supplied many jobs, but changing economies have somewhat reduced the dependence on these industries, although they are still important to the overall economy of Juab County.

### **Mesa County (Colorado)**

Mesa County boasts the largest population of any county along Colorado's Western Slope. Mesa County experienced exceptional population and economic growth through the 1990s, and this trend is expected to continue through the next two decades. Most of the County's population growth took place in or near the urbanized areas, but new development is expanding outside municipal boundaries (near Grand Junction). The County's growth has led to concern about the necessity and viability of agriculture operations and a county goal to "protect existing rural property rights and the agricultural economy."

### **Montrose County (Colorado)**

Montrose County has witnessed a significant in-migration over the past decade that is expected to continue. In fact, the County's population surged in the 1990s, posting a 37 percent growth rate between 1990-2000. Since 1990, Montrose County has experienced significant growth in the 40-64 age group, a trend that is expected to continue. The majority of private lands are used for agriculture, and wildlife-related activities make a significant contribution to the local economy. The County notes that most agriculture is tied to the Uncompahgre National Forest, not the Manti-La Sal. The County's mining sector has experienced a boom-bust cycle, and has recently experienced growth in its government and services sector.

### **San Juan County**

San Juan County has grown steadily in recent decades and is expected to continue to grow at a rate of 1 percent per year. As much of the population lives in relatively rural locales, the population of the county's largest towns—Blanding, Bluff, and Monticello—totals only about a third of the county. The Utah Strip of the Navajo Reservation encompasses one quarter of the San Juan County landbase. Roughly one-half the county's population are members of the Navajo Nation, and their average social and economic conditions are dramatically different from the rest of the county's residents.

Agriculture formed the basis of San Juan County's economy for many years. Oil, gas, and mining spurred economic booms, but this sector has decreased substantially over the last two decades, particularly with the closing of oil wells and uranium mills. Timber harvest has also declined.

While neighboring Grand County shifted to a tourism economy, San Juan County remained reliant on agriculture and other services. While residents would like to see agriculture, grazing, and timber preserved, the services, government, and non-farm proprietor sectors are now projected to create the most jobs in coming decades. With Glen Canyon National Recreation Area, Canyonlands National Park, and three National Monuments, most residents see tourism as the most promising economic resource. Much of the growth in government jobs has been attributed to education and social services programs addressing the poverty and education gap in the region. Economic development is a priority of all county residents.

### **Sanpete County**

Sanpete County's population more than doubled between 1970 and 2000 and is expected to continue growing at a steady rate. The County is feeling some growth pressure from the Wasatch Front as some current residents are able to commute out of the county for employment and a number of urbanites are establishing second homes in the valley. Some of the growth in the last decade came from the construction of the Central Utah Correctional Facility at Gunnison City. Migrant agricultural employees are also a part of recent population growth. The growth of Ephraim City and Snow College (roughly 2,500 students) has likely boosted both population numbers and contributed to the high educational attainment levels of the county. Average incomes are significantly lower than the state average, partly due to lower agricultural wages and a lack of industrial opportunities, but also likely due to a student population.

Since settlement, Sanpete County's economy has been agriculturally-based. The county currently ranks amount the top ten turkey producing counties in the United States; but agriculture employment has fallen since 1980 and is projected to continue doing so as technology improves. Mine closures in Emery County have also affected Sanpete County. As in much of the state, water is a limiting factor in Sanpete County to industrial growth and population expansion.

### **Sevier County**

Reflecting the same general trends of the statewide booms and recession, Sevier County witnessed a surge in population from 1970 to 1980 and again from 1990 to 2000, but job growth remained consistently slower than the rest of the state and growth in income remained steady. Still some indicators point to improvement. For example, fewer residents live in poverty and there is an increase in two-wage earning families. Education attainment has also improved and the increase in higher education attainment has been attributed to the growth of Southern Utah University.

Agriculture has historically been an important component of Sevier County, but has declined since 1980. Still, acres in agriculture remain steady. Sheep and cattle remain important to the local economy as do dairy products, field crops, and in recent years, raising turkeys. The largest proportion of jobs in Sevier County today is in trade and manufacturing—including food processing, clothing and building products, transportation, and utilities, followed by government. The service, manufacturing, and trade sectors are expected to continue growing. Mining employment in the region has similarly declined historically; numerous residents also commute to Emery County for mining employment.

### **Utah County**

Utah County's population nearly tripled between 1970 and 2000 and is expected to continue growing at a rapid pace in the next decade. The population growth was led by an extremely fast-growing job market, which was higher than both the state and national average. Much of the job growth in the last decade can be attributed to the technology and information-sector, as well as the growth of several universities in the

county. While the county's educational levels are likely higher due to these universities, average incomes are somewhat depressed by student incomes and a large average family size.

## **POPULATION**

Utah's population growth has historically exceeded that of the nation. Population growth in Utah is a very consistent phenomenon. In-migration is a contributor to this growth, but the state's internal birth rate is the primary factor. Since 1990, over 60 percent of the state's population growth has resulted from natural increase.

Utah ranked eighth among states with a population growth rate of 1.4 percent from 2002 to 2003. According to Census 2000, Utah continues to be the youngest state in the nation, with a median age of 27.1 compared to 35.3 nationally. The state's population is projected to reach 3.77 million by 2030.

**Table 11. Population and Population Projections for Counties within the Manti-La Sal National Forest Zone of Influence.**

COUNTIES	1980	1990	2000	PROJECTION FOR 2010	PROJECTION FOR 2020
<b>UTAH</b>					
Carbon	22,179	20,228	20,422	21,804	25,236
Emery	11,451	10,332	10,860	11,103	12,455
Grand	8,241	6,620	8,485	8,969	10,102
Juab	5,530	5,817	8,238	10,954	13,996
San Juan	12,253	12,621	14,413	15,823	18,696
Sanpete	14,620	16,259	22,763	26,351	30,611
Sevier	14,727	15,431	18,842	21,649	25,159
Utah	218,106	263,590	368,536	503,039	615,480
State of Utah	1,461,037	1,722,850	2,233,169	2,787,670	3,371,071
<b>COLORADO</b>					
Montrose	24,352	24,423	33,432	43,401	54,365
Mesa	81,530	93,145	116,255	143,591	181,367

Source: US Census Bureau and 2002 Baseline Projections, Utah Governor's Office of Planning and Budget, UPED Model System, <http://dola.colorado.gov/demog/widepro3.cfm>

## **EMPLOYMENT**

The prevailing national recession has caused an employment downturn in nearly all states in this country and was powerful enough to affect Utah's normal employment growth habit. Understanding the factors that led to recession will help determine the timing and speed of recovery. The rise of new technologies that occurred in the 1990s led to an extreme over-exuberance in the management and financing of those products. Fueled by a stock market out-of-control, the nation experienced an incredible build-up of production-capacity unmatched since the 1920s. Gauging how much was overbuilt in the late 1990s and how long it will take for that to subside or absorb will influence the rate of recovery. While a decline in employment in Utah is rare, it was experienced in 2002 and 2003. Utah has not experience a decline in employment since 1964.

**Table 12. Employment and Employment Projections.**

COUNTIES	1980	1990	2000	PROJECTION FOR 2010	PROJECTION FOR 2020
<b>UTAH</b>					
Carbon	9,922	9,281	11,415	13,508	15,424
Emery	5,401	4,890	5,025	5,681	6,281
Grand	4,016	3,353	5,577	6,345	7,051
Juab	2,416	2,449	3,533	4,777	6,043
San Juan	4,157	4,333	5,410	6,502	7,580
Sanpete	5,562	6,284	10,166	12,087	14,050
Sevier	6,313	6,832	9,816	11,652	13,531
Utah	79,565	118,018	195,169	254,702	310,925
State of Utah	667,388	900,419	1,340,109	1,667,638	1,991,534
<b>COLORADO</b>					
Montrose	24,352	24,423	33,432	41,456	50,576
Mesa	81,530	93,145	116,255	141,831	173,033
State of Colorado	2,889,733	3,294,394	4,301,261	5,137,928	6,133,491

Source: 2002 Baseline Projections, Governor's Office of Planning and Budget, UPED Model System

Utah's rate of employment in 2002 was 6.1 percent compared to a national average of 5.8 percent. All counties within the zone of influence experienced higher rates of employment than the national average, with exception of Utah County.

**Table 13. Unemployment Rates for 2002.**

COUNTIES/LOCATION	2002 UNEMPLOYMENT RATE (percent)	RANK IN STATE
<b>UTAH</b>		
Carbon	7.0	19
Emery	9.8	27
Grand	7.4	21
Juab	7.8	22
San Juan	9.3	26
Sanpete	7.1	20
Sevier	5.6	11
Utah	5.8	12
State of Utah	6.1	--
<b>COLORADO</b>		
Montrose	4.5	--
Mesa	3.8	--
State of Colorado	4.5	--

Source: Governor's Office of Planning and Budget

## INCOME

Per capita income in Utah in 2002 was \$24,157 with an average annual growth rate of 2.2 percent. The per capita income for the nation was \$30,832 with an average annual growth of 2.5 percent. Utah ranked 46<sup>th</sup> in the nation because of the large number of children in the state.

**Table 14. Per Capita Income in 2002.**

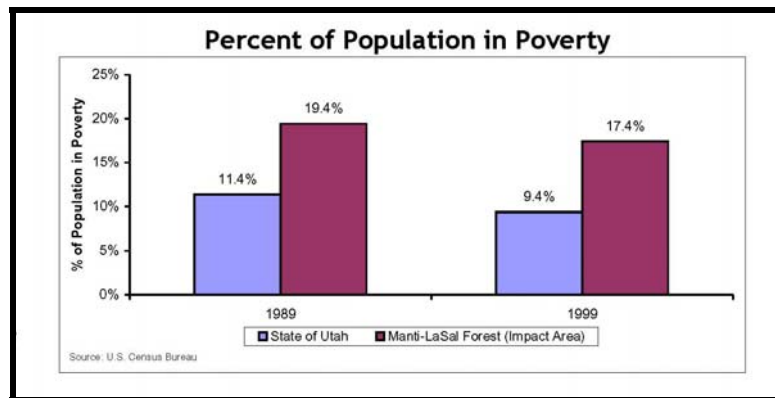
COUNTIES/LOCATION	PER CAPITA PERSONAL INCOME 2002	ANNUAL GROWTH 2001-2002
<b>UTAH</b>		
Carbon	\$23,180	2.9
Emery	\$17,933	0.3
Grand	\$20,919	1.0
Juab	\$15,920	0.5
San Juan	\$13,220	0.9
Sanpete	\$15,427	2.3
Sevier	\$19,041	2.9
Utah	\$19,141	-0.7
<b>COLORADO</b>		
Montrose	\$21,208	--
Mesa	\$25,548	--

Source: Governor's Office of Planning and Budget

## POVERTY

Census 2000 results demonstrate that Utah's economic growth during the 1990s was more equitable than that of the nation, as well as most states. Significant income growth occurred in all of Utah's income groups from 1989 to 1999. Utah ranked highest among all states in its proportion of households with "middle range" incomes. Further, the state's poverty data demonstrated the trend of increasing economic disparity that characterized most of the 1980s slowed in the 1990s. The proportion of "severely poor," "near poor," and "officially non-poor, but needy" Utahns declined, as did the state's overall poverty rate. Utah fared especially well in the alleviation of poverty among its most vulnerable populations—children, the elderly, and female-headed households.

**Figure 2. Population in Poverty: 1989-1999 Utah vs. Manti-La Sal Impact Area.**



Source: *People and the Forests*, Governor's Office of Planning and Budget

## PAYMENT TO THE STATES

Payments in Lieu of Taxes (PILT) are Federal payments to local governments that help offset losses in property taxes due to nontaxable Federal lands within their boundaries. Public Law 97-258 recognized that the inability of local governments to collect property taxes on Federally owned land could create a financial impact.

PILT payments help local governments carry out such vital services as firefighting and police protection, construction of public schools and roads, and search and rescue operations. The payments are made annually for tax-exempt federal lands administered by the BLM, National Park Service, Fish and Wildlife Service, Forest Service, and for federal water projects and some military installations. PILT payments are one of the ways that the federal government can fulfill its role of being a good neighbor to local communities.

Congress appropriates PILT payments each year. PILT payments are determined by a combination of factors (population, acreage, and federal agency ownership) that can fluctuate yearly. Each state chooses the formula used to divide funds between counties and distributes the funds. PILT payments are in addition to other federal revenues (such as oil and gas leasing, livestock grazing, and timber harvesting) that the Federal Government transfers to the States.

**Table 15. Payments in Lieu of Taxes (PILT).**

COUNTY	TOTAL 2003 PILT PAYMENT	TOTAL FEDERAL ACRES
<b>UTAH</b>		
Carbon	\$592,606	436,288
Emery	\$675,804	2,253,762
Grand	\$622,831	1,724,301
Juab	\$614,917	1,522,937
San Juan	\$769,099	3,058,851
Sanpete	\$706,273	531,578
Sevier	\$931,395	957,169
Utah	\$915,500	679,757
<b>COLORADO</b>		
Montrose	\$1,250,560	979,974
Mesa	\$1,540,730	1,563,670

Source: [www.blm.gov/pilt](http://www.blm.gov/pilt)

In addition to PILT payments, counties receive 25 Percent Fund payments. This fund returns 25 percent of all revenues generated from forest activities (with the exception of certain mineral programs) to the counties based on the number of acres of National Forest System lands within each county.

The Secure Rural Schools and Community Self-Determination Act of 2000 offered a new payment formula that gives counties an alternative to receiving funding under the traditional 25 percent fund. The new formula is based on averaging a state's three highest payment amounts between 1986 and 1999 to arrive at a compensation allotment or "full payment amount." Counties have the option, under the new legislation, to receive stable funding for local schools and roads, or continuing to receive payments under the traditional 25 percent fund. The legislation also created resource advisory committees and gave local communities the choice to fund restoration projects on federal lands and/or fund county projects.

Counties that elect to receive the full payment amount under the legislation and receive more than \$100,000 are required to allocate 15 to 20 percent of their funding for investments in county projects, or for forest projects that implement stewardship objectives to enhance forest ecosystems, or both.

**Table 16. 25 Percent Fund Payments for 2003.**

COUNTY	TOTAL 2003 25-PERCENT FUND PAYMENTS	MANTI-LA SAL RELATED 2003 25-PERCENT FUND	PERCENTAGE of COUNTY in MANTI-LA SAL NATIONAL FOREST OWNERSHIP
<b>UTAH</b>			
Carbon	3,720.08	3,720.08	3.2
Emery	26,143.93	26,143.93	7.4
Grand	7,026.82	7,026.82	2.4
Juab	25,915.87	0.00	0.8
San Juan	55,284.60	55,284.60	8.0
Sanpete	51,255.09	48,237.06	38.1
Sevier	86,098.13	1,332.20	2.4
Utah	113,726.85	23,465.51	6.8
<b>COLORADO</b>			
Montrose	94,365.10	4,961.75	1.6
Mesa	135,741.62	0.00	0.7

Source: USDA Forest Service, ASQR Reports for 2003

## AMERICAN INDIAN TRIBES

American Indian tribes that may be influenced by the Manti-La Sal National Forest management activities are the Hopi, Navajo, Northern Ute, Paiute, Ute Mountain Ute, and White Mesa Ute.

### Hopi

As of May 2002, there were 11,323 Hopi/Arizona Tewa enrolled members of the Hopi Tribe. Tribal enrollment is growing at an average of 5.5 percent per year while population is projected to grow at a rate of 2.2 percent. The Hopi population is young. In 1990, 41.2 percent of the total Hopi population was under 20. About 9,000 members reside on the reservation.

### Navajo Nation

Spanning Arizona, New Mexico, and Utah, the Navajo Nation covers 17 million acres, or about one-quarter the area of Arizona and constitutes one-third of all Indian lands in the lower 48 states. The land is endowed with significant renewable and non-renewable natural resources, including surface and ground waters, rangelands, prairie and forests, dry and irrigated farmlands, fish and wildlife, plus substantial reserves of coal, oil, natural gas, and uranium. Despite its significant economic potential, socio-economic conditions on the Navajo Nation are comparable to those found in some underdeveloped third world countries, with a majority of Navajo people living below the poverty level and unemployment ranging from 36 to over 50 percent seasonally. Due to economic conditions, the Navajo Nation is losing population to off-reservation areas. If this trend continues, about half of the Navajo people will live outside the Navajo Nation by 2012.

### Northern Ute

The Uintah and Ouray Reservation covers a large portion of western Uintah and eastern Duchesne counties. The area is a virtual storehouse of hydrocarbon wealth, including oil and gas, tar sands, oil and shale, and gilsonite, that has been trapped beneath the surface for millions of years and is presently being mined. On the surface are large areas of natural forest, fish and game preserves, and farming and grazing lands with considerable water resources. However, the ownership of the surface does not necessarily mean ownership of the minerals. A large area of land known as the Hill Creek Extension is tribally owned with mineral rights being owned by the Federal Government.



The enrolled membership of the Ute tribe is presently 3,120 members. Eighty-five percent of members presently live within the boundaries of the reservation. Like many rural communities, the aging population of the Ute Indian Tribe is growing. Additionally, a majority of residents fall into the low or very low income category.

### **Paiute**

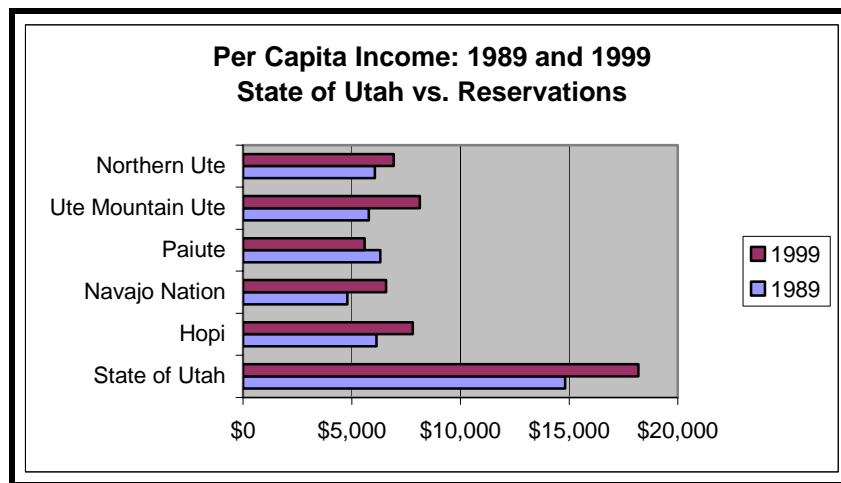
As of September 1997, there were 709 members of the Paiute Tribe among five bands: the Shivwits, Indian Peaks, Kanosh, Cedar, and Koosharem. According to the latest Health Department data, 16 percent of the membership is over the age of 55 and 84 percent are under the age of 55, including 47 percent 16 years of age and younger.

### **Ute Mountain Ute/White Mesa Ute**

Endeavors such as oil and gas, the new Farm and Ranch Enterprise, Ute Mountain Tribal Park, and Ute Mountain Casino have allowed over 900 people to be employed in the tribe's enterprises and programs, making the Ute Mountain Ute tribe the second largest employer in the Four Corners area. As of January 1999, enrollment for the Ute Mountain Ute tribe was 1,968 members. The majority live in Towaoc and White Mesa. The tribal census shows the largest part of the membership is in the twenties and younger age group.

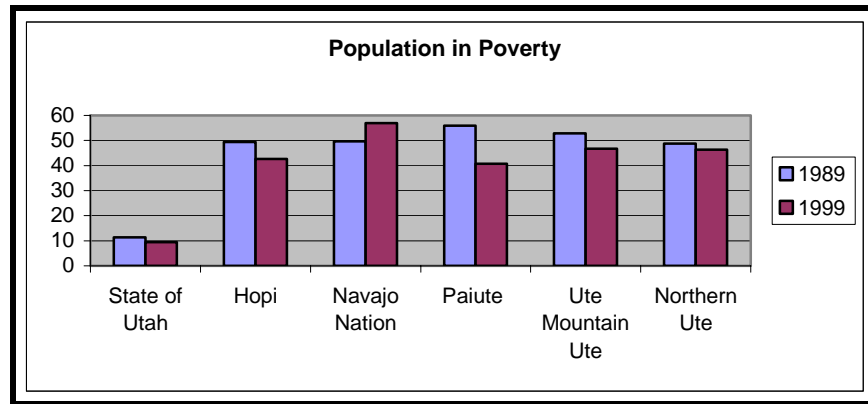
The White Mesa group is a part of the Ute Mountain Ute Tribe. Many White Mesa Utes are currently employed in education, the service industry, and a cattle company at White Mesa or in farming and a local casino in Towaoc. Today the White Mesa Ute tribe has about 380 members.

**Figure 3. Utah American Indian Per Capita Income: 1989 and 1999**



Source: *People and the Forests*, Governor's Office of Planning and Budget

Figure 4. Utah American Indian Population in Poverty.



Source: *People and the Forests*, Governor's Office of Planning and Budget

## HERITAGE RESOURCES

The Manti-La Sal National Forest contains some of the most important prehistoric cultural resources and landscapes in the Four Corners and Wasatch Plateau region and important resources associated with the historical development of the State of Utah. These resources span an estimated 10,000 years of human occupation and use of the lands in and adjacent to the Forest. Four thousand heritage resource sites have been documented on the Forest. Many of these sites are eligible for the National Register of Historic Places, but fewer than five have been nominated and listed.

The most notable of these resources are located within the Cottonwood basin on the Monticello Ranger District in San Juan County. The prehistoric puebloan villages, cliff dwellings, agricultural terraces, pottery kilns, and other features found here rival those in nearby national parks and monuments. These resources, because of their intact relationships with the land and other sites, represent some of the most significant archaeological resources in the greater Southwest. Consequently, they have very high research and interpretive value and warrant special management considerations as prescribed by Section 110 of the National Historic Preservation Act.

Another important ancient cultural landscape is found on the Ferron/Price Ranger District on the Manti Division. This landscape consists of a concentration of alcove or rock shelter sites in the Quitchipa/Pines area. These sites occur in the outcropping Castlegate Sandstone formation and frequently possess well-preserved cultural deposits, potentially dating back to the earliest periods of human occupation in the Intermountain Region (ca. 10,000 B.P.). Because of this potential, the rock shelter sites have high research and interpretive values. These sites are continually threatened by on-going coal mining in the area.

The importance of the cultural and historical resources on the Manti-La Sal National Forest has long been recognized. Until the current Forest Plan was approved, little energy or funding was expended to actively manage these resources.

Current Forest Plan direction is based primarily on compliance with Section 106 of the National Historic Preservation Act and 36 CFR 800.4 (outlining the 106 process). These actions focus on site protection and limited enhancement as the only outcomes of improved internal awareness and encourage programs promoting public education, awareness, and participation.

The ability to enter spatial data for archaeological sites and inventory projects into a Geographic Information System (GIS) database has provided base-level information for continual site monitoring. In 1989, the Forest participated in an interagency effort to determine the types and locations of sites vulnerable to vandalism using GIS. Between 1989 and 1991, approximately 200 sites were documented through a volunteer partnership with the Sierra Club. Beginning in 1998, over 20 sites were monitored through the site steward program, utilizing volunteers in a proactive stance geared toward site protection.

**Table 17. Summary of Site Protection, Monitoring and Enhancement Efforts, and Observed/Reported Cases of Unauthorized Damages.**

YEAR	SITES MONITORED	SITES ENHANCED	SITES PROTECTED	ESTIMATED CASES OF ILLEGAL DAMAGE
1991	91	0	200	5
1992	No data available			
1993				
1994				
1995	52	2	2	2
1996	46	2	12	2
1997	24	2	8	2
1998	50	4	0	0
1999	41	3	0	0
2000	60	3	1	1

Source: 1992-2000 Forest Plan Monitoring and Evaluation Report

The precise times of occurrence for incidents of illegal vandalism are difficult to determine. However, the ability to make this determination is increasing with improved base-level resource data. Overall, efforts to investigate and prosecute illegal vandalism has increased since the early 1980s, probably due to heightened efforts by the Forest Service and other federal and state agencies to increase public education, awareness, and involvement with cultural resources. Law enforcement, though not high profile, is believed to have contributed to this decrease. In 1991, formal law enforcement investigations were commenced on five separate incidents of unauthorized digging. Indictments, trials, and sentencing were carried out on all cases.

Incidents of damage by controllable natural agents, while acknowledged to occur, are more difficult to detect. Structural deterioration of prehistoric ruins, disturbance of subsurface archaeological deposits, and erosion due to the effects of wildfire continue. Enhanced properties, where data recovery or stabilization efforts were undertaken, are shown in Table 17.

The current management emphasis for such resources is primarily reactive in nature: identification, evaluation, and protection (by avoidance) of sites from adverse affects associated with on-going minerals extraction, grazing, timber harvest, and recreational activities. While this satisfies to a large extent the Section 106 requirements of the National Historic Preservation Act, it does not address agency responsibilities under subsequent amendments and Section 110 of the Act. Under these changed circumstances, the Forest has the opportunity to enhance its preservation responsibilities through the development of specific plans for identifying, evaluating, and nominating historic properties to the National Register of Historic Places and formalizing educational and interpretive programs.

Current Forest Plan direction does not accommodate changes in the areas of tribal consultation and provide emphasis on the requirements of Section 110 of the National Historic Preservation Act.

## **LANDS**

Through the Utah State Land Exchange in May 1998, the Forest acquired 12 tracks of land (5,170.35 acres of surface estate and about 8 square miles and 5,659.7 acres of subsurface [mineral estate]) on the Manti Division. On the San Pitch Division, eight tracks of land were acquired (1,197.57 acres of surface estate and 1,277 acres of subsurface [mineral estate]). When the lands were acquired, they were automatically subject to Forest Plan direction—no plan amendment was required.

Since implementation of the Forest Plan, there has been one land exchange, one donation, and the purchase of one administrative site (USDA Forest Service, 2001b). A Forest Land Adjustment Plan has not been prepared to identify priorities for acquisition and exchange. Without this plan, land adjustment activities continue to be reactive to proposals outside the Forest Service and some opportunities to consolidate ownership are missed.

### **Corridors**

The Western Utility Group (WUG), an ad hoc organization of major western gas, electric, and telecommunications companies, has identified the projected long-term corridor needs of the member companies. The Utility Corridor (UC) management emphasis areas in the Forest Plan are generally consistent with needs identified by WUG. There may be a need to identify additional utility corridors across the Forest.

### **Rights-Of-Way Acquisition**

The Forest Plan identified 39 rights-of-way acquisitions (access across private lands to National Forest System lands); six have been accomplished. This program has fallen behind due to lack of funding and the unwillingness of private landowners to authorize access through their land.

### **Occupancy Trespass**

Adjustments under the Small Tracts Act are typically made to resolve occupancy trespass. Several adjustment opportunities have been identified with little progress to date due to funding limitations. There are known cases of trespass, but no action (other than a letter to the offending party) has been taken in most cases. In many areas, Forest boundary markers are missing and need to be replaced.

### **Landline Location**

Due to lower than anticipated funding levels, total miles of landline location is not within +/-10 percent of amount identified in the Forest Plan. Approximately 135 miles of landline (84 percent of the Forest Plan projection) has been established and posted.

### **Special Use Management (Non-recreation)**

Forest priorities for special use management are to: 1) administer existing permits, 2) renew expiring permits, and 3) issue new permits. Applications for new special use permits are backlogged due to funding limitations. Voluntary cost reimbursement is available to provide additional resources to expedite processing of requests but has not been readily accepted by applicants.

About five to seven requests for access across National Forest System lands to private lands are received annually; ten requests are currently being processed. Capability to resolve issues and concerns with respect to access, consolidation of lands (both private and federal), and landline location is limited.

### **Communication Sites**

Inquiries regarding potential new communication sites and additional uses on existing sites are increasing. Requests for use of existing administrative sites by public users (i.e. Tidds Ridge, Monument Peak, Poison Ridge) have also increased. Communication site development opportunity is limited due to

site topography, existing facilities, and site plan restrictions. Communication site plans have not been prepared for several designated sites. Additionally, use at undesignated (single use) sites has grown necessitating communication site plan preparation and designation. By designating additional sites and completing site plans, requests for new/additional uses can be reviewed and action taken in a more timely and efficient manner.

## RECREATION

Since implementation of the Forest Plan, major changes have occurred in the nature of recreation the public enjoys and expects on the Manti-La Sal National Forest (Table 18).

**Table 18. Major Differences in the Recreation Program from 1986 to 2003.**

RECREATION CHANGES ON THE MANTI-LA SAL NATIONAL FOREST SINCE FOREST PLAN IMPLEMENTATION	
1986	2003
All developed sites managed by the agency.	Most developed sites managed under permit by a concessionaire. Fee Demo areas exist on certain dispersed sites.
Dispersed recreation was managed and causing minor resource damage.	Dispersed recreation is the predominant form of recreation on the Forest and has caused substantial resource damage.
Camping was largely car camping.	Camping in self-contained vehicles is dominant.
Opportunities for solitude were common in all recreation settings.	Dispersed and off-highway vehicle use has increased in Roaded Natural and Semi-Primitive Motorized Settings, decreasing the opportunity for solitude in dispersed recreation corridors.
Motorized vehicles were main transportation to get to recreation areas.	Motorized vehicles and off-highway vehicles have become a recreation activity.
Off-highway vehicle use was primarily specialized four-wheel drive vehicles and motorcycles, with some three-wheel ATVs in use.	Four-wheel drive vehicles and ATVs are the commonly available and used off-highway vehicles.
Mountain biking and rock climbing/bouldering uses were not present.	Mountain biking and rock climbing/bouldering have become common recreational activities.
Snowmobile use was a minor activity and machines were not reliable or powerful enough for deep snow found on the Wasatch Plateau. Use levels were low.	Snowmobile use has increased due to new technology and the excellent terrain. Competition between snowmobiles and skiers has intensified. Snowboarders have replaced skiers in many areas.
Recreation use occurred on holidays, big-game hunts, and when the coal mines were closed. Most users were local and the Forest was treated like the local communities' back yard.	Recreation occurs nearly year round with only a change in equipment. Users are from the local area (40%), the Wasatch Front (30%) and from out of state (30%). The Forest has a broader user base.
Recreation use was calculated in Recreation Visitor Days (RVDs). RVDs were estimates of the amount of use. In 1986, use was estimated to be one million RVDs. This estimate was probably high by at least 300,000 RVDs	In 2001, the Manti-La Sal National Forest completed a statistical sample of visitation. The total calculated visits on the Forest amounted to 804,000 visits.
Local communities were dependent on resource extraction.	In an effort to diversify local economies, communities are seeking recreation business opportunities resulting an increased Outfitter/Guide permit demand.
The Forest Service was able to supplement recreation funding with other appropriated funds.	Recreation funding is strictly limited in how it can be used. The Forest is relying more on volunteers, concessionaires, interpretive associations, and other partnership opportunities.

Other changes (e.g., the closing of the Blue Mountain Ski area, the opening of the Manti-La Sal Avalanche Center, the arrival of the snowboard, and the overall growth of the state's population) have occurred. Recreation management on the Forest has remained the same despite growing use levels, different types of use, and a shift in user expectations.

### **Recreation Facilities**

The use of developed recreation facilities fell below Forest Plan expectations. Many Forest visitors did not use many of the amenities previously thought desirable and important in campgrounds designed in the 1960s. Much of this trend is due to the increased use of recreational vehicles (RVs). Recreational vehicles bring many of the conveniences of home to the camping experience. Adequate access, parking, and a fire ring are all the amenities necessary for many forest visitors, even though developed sites have been improved to better accommodate larger recreational vehicles (Joe's Valley, Devils Canyon) and converted to specialized use (e.g., equestrian use at Chicken Creek).

Today's campers seek the dispersed camping experience for more isolation and fewer restrictions. There is a strong tie between dispersed camping and off-highway vehicle use, which has resulted in a network of user developed trails connecting dispersed camping sites and increased noise levels along road corridors where dispersed camping occurs. This increased type of use affects the sense of solitude in general forest areas.

### **Off-Highway Vehicles**

The increased use of off-highway vehicles has resulted in a greater demand on the resources and increased conflicts between motorized and nonmotorized users. All-terrain and four-wheel drive vehicles have the ability to travel through muddy and wet sites and can damage muddy trails and roadways when passage is attempted. Illegally pioneered routes are common across the Forest. These unclassified roads and trails are created without regard to resource capabilities and can cause soil erosion, stream sedimentation, vegetation loss, habitat fragmentation, damage to heritage sites, and safety issues.

Currently there are four types of off-highway vehicles accessing the Forest: off-road motorcycles, single passenger ATVs, 2+ passenger four to six wheel drive off-highway vehicles, and street legal four-wheel drive vehicles. Motorcyclists generally prefer single-track trails but can travel on any authorized road and motorized trails. ATV riders require a doubletrack trail to accommodate the vehicle size. Multiple passenger vehicles including four-wheel drive and larger off-highway vehicles (52 inches and wider) are not allowed on trails. These users desire roads with low maintenance levels and challenging obstacles. User conflicts occur on off-highway vehicle trails used by hikers and equestrians or on poorly maintained roads where high speed off-highway vehicles meet slower street legal vehicles.

### **Motorized Trails**

The Arapeen Trail is the only motorized trail system on the Forest and is located in south central Utah within the Manti Division. The backbone of the system is the scenic south Skyline Drive, a rugged four-wheel drive experience for most of its 58-mile length from Utah Highway 31 to the Fishlake National Forest boundary. Over 350 miles of ATV trails and high clearance vehicle roads are included in the system. There are also scattered motorized trails throughout the Forest that are not included in the Arapeen Trail System.

Trail maintenance continues to fall short due to staffing shortages and budget constraints. Monitoring and evaluation suggests maintenance should continue on all trails to prevent further deterioration, deferred maintenance needs should be aggressively addressed with an emphasis on meeting Critical National Standards, key measures and standards should be met on all trails, and partnership opportunities should be expanded (USDA Forest Service, 2001b).

## TRANSPORTATION SYSTEM

The Forest transportation system serves a variety of resource management and access needs. Most Forest roads were originally constructed for commercial purposes including livestock grazing, timber harvest, and mineral extraction. Others resulted from the construction of water storage and transmission projects for municipal water supplies. Over the past 100 years, an extensive road network has been developed and continues to serve commercial, recreation, and administrative purposes while providing access to private inholdings.

The Forest Service Natural Resource Agenda highlights national forest road management as one of the most complicated issues facing the agency today. Public response to the February/March 2003 Forest Plan Revision Newsletter showed access provided by both roads and trails to be a large area of concern with divided views on what the appropriate level of access should be.

The current direction for road system management is provided by the National Forest System Road Management rule (January 2001), which revised 36 CFR parts 212, 261 and 295, concerning the management, use, and maintenance of the National Forest Transportation System (NFTS). The intended effect of the rule is to ensure that additions to the NFTS are needed for resource management and use; that construction, reconstruction, and maintenance of roads minimize adverse environmental impacts; and unneeded roads are decommissioned with the restoration of ecological processes initiated. The rule requires all decisions regarding the road system to be supported by a science-based roads analysis at the appropriate scale. The Manti-La Sal Forest-Scale Roads Analysis was completed in November 2002 and validated the adequacy and necessity of the Forest's primary transportation system (Table 19).

**Table 19. Objective Maintenance Level 3 and 4 Roads (USFS Jurisdiction) by Geographic Unit (miles).**

MAINTENANCE LEVEL	ABAJO MOUNTAINS (miles)	LA SAL MOUNTAINS (miles)	MANTI DIVISION (miles)	SAN PITCH MOUNTAINS (miles)	FOREST TOTAL (miles)
3	98.0	54.8	293.7	3.0	449.5
4	0.1	3.7	6.2	0.0	10.0
Total	98.1	58.5	299.9	3.0	459.5
	21%	13%	65%	1%	100%

There are currently 2,756 miles of classified roads on the Manti-La Sal National Forest Transportation System. They provide access to and within the National Forest. The Forest has jurisdiction for 2,235 miles while approximately 521 miles have county, state, or private jurisdiction. Carbon, Emery, Grand, and San Juan counties (Utah) and Montrose County (Colorado) perform annual maintenance activities on approximately 263 miles of road within Forest Service jurisdiction under Forest Road agreements.

The remaining 1,804 miles of inventoried National Forest System roads either have restrictions on motorized vehicle traffic use (maintenance level 1) or are managed for high-clearance vehicles such as pickup trucks and four-wheel drive vehicles (maintenance level 2). These roads are single-purpose, low volume, and normally single-lane and unsurfaced.

There is an estimated 1,372 miles of unclassified routes on the Forest not recognized as part of the transportation system. Some of these routes were once classified roads the Forest attempted to decommission; use is still occurring on routes where such efforts were unsuccessful. Management

decisions on whether to include these routes as part of the transportation system or to decommission or restrict them from further use will be made at the watershed or project scale.

The Forest has seven Forest Highways. These routes are Forest, state or county owned roads qualifying for federal funding for improvement or enhancement. They provide access to and within the National Forest (Table 20).

**Table 20. Federally Designated Forest Highways.**

<b>FOREST HIGHWAY ROUTE NO./NAME</b>	<b>DESCRIPTION</b>	<b>COUNTY</b>	<b>LENGTH (miles)</b>
FH 7 Fairview-Huntington	State Route 31, begins in Fairview and ends in Huntington	Sanpete Emery	48.0
FH 8 Ephraim-Orangeville	State Route 29, begins in Ephraim and ends in Orangeville	Sanpete Emery	46.6
FH 45 Eccles Highway	State Route 264, begins on FH 7 and ends on Highway 96	Sanpete Emery Carbon	15.6
FH 46 La Sal Loop	Previously Forest Service Road (FSR) 50062, begins on FSR 50073 and ends on FSR50207	San Juan Grand	37.0
FH 47 Elk Ridge Loop Road	From junction with UT 275 near Natural Bridges National Monument, northerly via FSR50088 to junction with UT 211 at Dugout Ranch	San Juan	58.7
FH 48 South Elks Road	From junction with UT 95, 11 miles west of Blanding, north and west via FSR50092 to junction with Elk Ridge Road	San Juan	17.1
FH 49 Monticello- Newspaper Rock Road	Begins in Monticello, west and north via FSR 50105 and FSR 50100 and ends at the junction of HWY 211	San Juan	16.6

## **ROADLESS**

Prior to the Colorado Wilderness Act of 1982 and the Utah Wilderness Act of 1984, an inventory of essentially unroaded and undeveloped lands was completed. These areas met the minimum definition of wilderness and qualified for wilderness evaluation per NFMA (CFR 219.17). The Manti-La Sal National Forest inventory contained 40 roadless areas, totaling 600,170 acres. The Utah Wilderness Act designated 706,736 acres of wilderness statewide, including the 45,000 acre Dark Canyon Wilderness on this Forest. The purpose of the Utah Wilderness Act was "to designate certain national forest lands in the State of Utah for inclusion in the National Wilderness Preservation System, and to release other forest lands for multiple use management, and for other purposes." It is recognized that roadless areas have important ecological and social values of both local and national significance. Some areas also have substantial motorized trail recreation values.

The current inventoried roadless areas of the Manti-La Sal National Forest are mapped in the *Roadless and Undeveloped Area Evaluation RARE II Final Environmental Assessment* (USDA Forest Service, 1979) and the Manti-La Sal National Forest planning record (Redbooks, 1983-86). Maps were updated as of October 1999, in response to the Roadless Area Conservation; Final Rule (36 CFR 294). The



Manti-La Sal National Forest Inventoried Roadless areas consist of approximately 645,285 acres (Table 21).

**Table 21. Current Roadless Areas on the Manti-La Sal National Forest.**

MANTI NATIONAL FOREST ROADLESS AREAS			
ACREAGE	NAME	ACREAGE	NAME
12,809	Roc Creek	5,726	Wildcat Knolls
22,483	Cedar Knoll	9,620	Mt. Peale
8,300	North Horn	14,970	South Mountain
4,522	Heliotrope	13,025	Shay Mountain
59,113	Muddy Creek-Nelson Mt.	21,364	Blue Mountain
28,424	Big Bear Creek	13,988	Allen Canyon-Dry Wash
22,394	Horse Mountain-Mans Peak	12,773	Arch Canyon
6,352	Coal Hollow	13,766	White Knoll
11,572	Bennion Creek	16,559	Hammond-Notch Canyon
30,494	Dairy Fork	25,532	Price River
34,012	East Mountain	19,341	Oak Creek
6,436	Gentry Mountain	30,940	Sanpitch
23,267	Boulger-Black Canyon	12,168	Nuck Woodward
17,542	Big Horseshoe	7,317	Rolfson-Staker
6,012	Straight Canyon	23,383	Levan Peak
18,728	Biddlecome-Rock Canyon	29,620	White Mountain
6,385	Black Mountain	11,994	Musinia Peak
7,998	Birch Creek	8,232	Ruin Canyon
10,227	Twelve Mile Creek	59,392	Dark-Woodenshoe Canyon

The roadless area maps from RARE II and the 1999 Roadless Area Conservation Rule were created from data developed in the 1970s and may not accurately reflect the existing roaded/unroaded nature of the area. The RARE data was developed without the benefit of Geographic Information Systems (GIS) technology and contains substantial errors. The RARE II data does not consider road development and land altering activities that have occurred since 1983.

Forest Service Policy and NFMA regulations require roadless areas to be evaluated and considered for wilderness designation during the forest planning process. Roadless areas have varying degrees of wilderness characteristics. A wilderness, in contrast with those areas where man and his own works dominate the landscape, is recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined as an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which: 1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; 2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; 3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and 4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value (Wilderness Act, Section 2c). The Forest Service does not have the authority to designate wilderness areas, but rather evaluates and considers roadless areas for recommendation as potential wilderness areas. Formal designation of wilderness areas occurs through Congressional action.

A draft roadless inventory has been completed according to the protocol found in FSH 1909.12, Chapter 7. The evaluation process is ongoing.

## **DARK CANYON WILDERNESS**

The Utah Wilderness Act of 1984 designated 706,736 acres statewide, including the 45,000 acre Dark Canyon Wilderness on the Manti-La Sal National Forest. Adjacent public lands administered by the Bureau of Land Management and National Recreation Area lands are being considered for wilderness and could add to the size and diversity of the Dark Canyon Wilderness.

Dark Canyon represents the first major Colorado Plateau Canyon terrain to be added to the National Forest Wilderness System. This diverse canyon country contains arches, springs, seeps, and hanging gardens. Life zones range from ponderosa pine and aspen covered high country to desert vegetation in the bottom of Dark Canyon at the Forest boundary. High red rock canyons dwarf visitors with terraced castle-like walls towering 3,000 feet above the canyon floors. Wildlife species are diverse and include mule deer, cougar, and desert bighorn sheep. The area is also rich with archaeological treasures; graneries, pottery, and ruins are abundant (Utah Wilderness Act, 1984).

Stewardship for the Dark Canyon Wilderness is not being met due to inadequate staffing and budget. A wilderness management plan has not been completed to determine specific management of the wilderness area.

## **RESEARCH NATURAL AREAS**

Research Natural Areas (RNAs) are lands within the National Forest System that are permanently protected as places to conduct research and monitoring, maintain biological diversity, and foster education. Current Forest Plan direction calls for the prohibition of roads, prospecting, seismic activity, livestock grazing, and construction of utility corridors within RNAs.

Since implementation of the Forest Plan, the Forest has designated the following Research Natural Areas: Nelson Mountain, Mount Peale, Cliff Dweller's Pasture, Mill Creek Gorge, and Hideout Mesa. A Forest Plan amendment, approved in November 1998, established direction for and set aside Mill Creek Gorge and Hideout Mesa as RNAs. Since the Nelson Mountain, Mount Peale, and Cliff Dweller's Pasture RNAs were designated after the completion of the Forest Plan, applicable management direction needs to be incorporated for these areas during plan revision.

The Forest has received an outside proposal for the creation of a 5,000 – 8,000 acre RNA on the Sinbad Ridge area of the Moab Ranger District. This proposal will be evaluated for the presence of unique or special characteristics of scientific interest, manageability, and importance that are needed to complete the national network of RNAs.

## **SPECIAL INTEREST AREAS (SIAs)**

The purpose of special interest areas is to "protect and manage for public use and enjoyment special areas with scenic, geological, botanical, zoological, paleontological, archaeological, or other special interest characteristics or unique values" (FSM 2372.02). Current Forest Plan direction for special interest areas is to provide signing and protection, and to manage for long-term public enjoyment.

### **Existing Special Interest Areas**

- The Great Basin Experimental Range (4,608 acres) was established for range and hydrological research.
- The Grove of Aspen Giants was established as a special scenic area (10 acres) containing some very large aspen trees. The majority of large aspens within this site have died.
- The Pinhook Battleground is the historic site (one acre) of a battle between early settlers and Americans Indians.
- The Mont E. Lewis Botanical Area is a unique wet meadow containing plant species not normally found outside of arctic and alpine habitats. This area was proposed in the 1986 Forest Plan as the “Scad Valley Botanical Area” and designated in 1995 (USDA Forest Service, 1986, II-59). The area presently consists of 20 acres, however, the Forest botanist has recommended the area be expanded by 80 acres to protect against impacts from livestock and people.

### **Potential Special Interest Areas**

Forest personnel have identified the following potential Special Interest Areas:

- Archeological site(s), Monticello Ranger District: The Forest possesses a number of outstanding ancient cultural landscapes. The most notable of these are located within the Cottonwood basin in San Juan County. These resources represent some of the most significant archaeological resources in the greater Southwest.
- White Mountain, Ferron Ranger District: The White Mountain area is subalpine to near alpine in elevation (10,900 feet). Seventy plant species have been collected and identified from this site, including three sensitive species.
- Maloy Park, Moab Ranger District: This area contains both unique landforms and vegetation. It is primarily used as a recreation area and for livestock grazing.
- Maple Canyon, San Pitch Division: This area contains unique geology featuring a non-typical arch formed from conglomerate. This area is also renowned for its rock climbing.
- Little Dry Mesa, Monticello Ranger District: This area contains three sensitive plant species, along with many other common and unique plants.

## **SCENERY**

The current Forest Plan includes Forest-wide standards that were developed under the Visual Management System (1974). This system relied on “natural conditions” as the reference point for establishing an aesthetic value for the degree of alteration of a landscape.

On the Manti-La Sal National Forest, the Preservation Visual Quality Objective (VQO) category consists of some of the highest scenic quality areas including Dark Canyon Wilderness, Hammond Canyon, and Mount Peale. Retention areas are scattered throughout the Forest and are concentrated in the viewsheds of the Moab District, the canyons and scenic byways of the Manti Division, the Maple Canyon area of the San Pitch Division, and the canyons on the Monticello District. Maximum Modification areas exist in the Buckeye Creek and Little Forest areas of the Moab District and were identified as such because of a timber harvest management emphasis in the ponderosa pine forest. Partial Retention and Modification classes are scattered throughout the Forest. Modification areas generally occur in places where mining activity/potential and suitable timberlands exist.

Visual Quality Objectives were established independent from other resource values. Visual quality objectives did not consider cultural features valued by local communities and/or that have historic significance.

Since the development of the Forest Plan, the agency has developed the Scenery Management System (SMS) for managing scenic resources that considers both ecological change and valued cultural features.

By utilizing the Scenery Management System, forest landscapes can be rated, prioritized, and zoned to guide future management activities and meet objectives for the Forest's scenic resources. The Forest Plan does not include use of the Scenery Management System.

## WILD AND SCENIC RIVER INVENTORY

Agency policy related to the Wild and Scenic River Act of 1968 (P.L. 90-542) requires that rivers identified as potential wild and scenic rivers be evaluated as to their eligibility, with the findings documented in the Forest Plan. An eligible river must be free-flowing<sup>7</sup> and possess at least one feature that is judged outstandingly remarkable<sup>8</sup>. Additionally, it is recommended, but not required, to complete the wild and scenic river suitability studies during the Forest Plan revision process. To be found suitable, the benefits of designating the river should outweigh the disadvantages. If a recommendation is deferred on those rivers identified as eligible where the Forest Service has primary responsibility, the Forest Plan must provide interim management direction for protection of the outstanding features. Based on the surrounding features and current management, rivers are classified as wild, scenic, or recreational and managed accordingly. The final step, after the suitability study, is a recommendation to Congress for designation of suitable streams or stream segments.

The Manti-La Sal National Forest completed the *Final Eligibility Determination of Wild and Scenic Rivers* in March 2003, which identified fourteen eligible river segments (Table 22).

**Table 22. Manti-La Sal National Forest Eligible Watercourses.**

WATERCOURSE	COUNTY	OUTSTANDINGLY REMARKABLE VALUES	SCALE OF IMPORTANCE (SIGNIFICANCE)	TENTATIVE CLASSIFICATION
Lower Left Fork of Huntington Creek	Emery	Scenic	Regional	Scenic
Huntington Creek	Emery	Scenic Recreation	Regional Regional	Recreational
Fish Creek, including Lower Gooseberry Creek (Utah County-3.26 miles; Carbon County-3.98 miles, Sanpete County-13.55 miles)	Utah Carbon Sanpete	Wildlife	Regional	Scenic (17.03 miles from headwaters of Fish Creek and the beginning of Lower Gooseberry Creek to junction of Fish Creek with Lower Gooseberry Creek  Recreation (3.98 miles from junction of Fish Creek and Gooseberry Creek to the Forest Boundary)
North Fork of Whiskers, including Whiskers Draw	San Juan	Cultural	National	Recreational
Hammond Canyon	San Juan	Scenic Geologic/Hydrologic Cultural	Regional National National	Scenic
Notch Canyon	San Juan	Scenic Geologic/Hydrologic Cultural	Regional National National	Scenic

<sup>7</sup> A stream that exists or flows in a natural condition without impoundment, diversion, straightening, riprapping, or any other modification of waterway.

<sup>8</sup> Characteristic of a river segment that is judged to be a rare, unique, or exemplary feature that is significant at a regional or national scale.

WATERCOURSE	COUNTY	OUTSTANDINGLY REMARKABLE VALUES	SCALE OF IMPORTANCE (SIGNIFICANCE)	TENTATIVE CLASSIFICATION
Posey Canyon	San Juan	Scenic Geologic/Hydrologic Cultural	Regional Regional National	Scenic
Chippean & Allen Canyons	San Juan	Scenic Geologic/Hydrologic Cultural	Regional Regional National	Recreational
Butts Canyon, Arch Canyon and Texas Canyon	San Juan	Scenic Geologic/Hydrologic Cultural	National National National	Scenic
Upper Dark Canyon, including Drift, Horse Pasture, Rig, Peavine, & Kigalia Canyons	San Juan	Geologic/Hydrologic Cultural	National National	Recreational
Lower Dark Canyon, including Poison, Deadman, Trail, Warren, and Woodenshoe & Cherry Canyons	San Juan	Scenic Geologic/Hydrologic Cultural	National National National	Wild
Millcreek Gorge	San Juan	Scenic Geologic/Hydrologic Other Similar Values	National Regional Regional	Wild
Roc Creek (San Juan--0.38 miles Montrose--9.02 miles)	San Juan Montrose	Scenic Geologic/Hydrologic	National Regional	Wild
Miners Basin	Grand	Historic	Regional	Recreational

The Forest is currently working with adjacent counties and the public to gather information for the preliminary suitability factor analysis of these fourteen river segments. The suitability factor analysis involves issues such as local, state, and congressional support; potential foreseeable uses along the river corridor; and potential water resource development. Rivers deemed not suitable may be more appropriately managed through protections provided in the revised Forest Plan. Those rivers found suitable will be recommended to Congress for Wild and Scenic River designation and protected in the Forest Plan according to their values and classification.

## HUMAN RESOURCES

Between 1998-2003, the Manti National Forest averaged approximately 88 permanent full-time employees and 1 permanent part-time employee, with the remainder of the workforce made up of temporary employees.

From 1999-2003, the Forest averaged 340 volunteers per year, accomplishing an average of \$180,250 of work per year.

The workforce is also supplemented by Senior Community Service Employment Program (SCSEP) enrollees. Over the past five years, the Forest has hosted an average of 14 enrollees each year. This equates to a value of approximately \$205,000 per year.

A major source of non-appropriated funding for Forest Service sponsored projects is from grants and agreements with state, federal, and private organizations. Over the last five years, the value of projects

accomplished in this manner has averaged approximately \$2.1 million per year. Between 2002 and 2004 partnerships with local rural community development offices amounted to about \$287,000.

It appears unlikely that the Manti-La Sal National Forest will ever achieve the funding or staffing levels originally envisioned in the 1986 Forest Plan. Therefore, the workforce will continue to be shared whenever possible across organizational boundaries. Because of the Manti-La Sal National Forest's commitment to promoting volunteerism, it is anticipated that this level of accomplishment will continue. As long as the Forest Service is authorized as a host agency, the Manti-La Sal will continue to utilize the SCSEP program. The Forest intends to continue and increase coordination and cooperation with local governments, while also pursuing grant and partnership opportunities with federal, state, and private organizations.

## **TIMBER SUPPLY AND DEMAND**

### **Sawtimber**

While most of the sales offered since Forest Plan implementation have been sold, there has been a decline in the number of timber sale purchasers due to a sluggish economy, competition from foreign markets, and the Forests' inability to reliably offer sales on schedule due to litigation and process delays. Sawmills in Blanding and La Sal have closed, while a mill in Wellington and a houselog manufacturer in Gunnison are struggling due to the lack of local material being offered. Consequently, demand for wood products has dropped off and the future demand is unknown.

### **Fuelwood Program**

Restrictions on woodstove use and the inexpensive supply of other energy sources (i.e. natural gas) resulted in a decline in the demand for fuelwood throughout most of the planning period. Since 2002, however, rising electric and natural gas costs have rekindled some interest in fuelwood. The Forest's present fuelwood quantity remains quite adequate with no problems in the foreseeable future considering the volume of dead trees available from insect and disease infestations.

### **Christmas Tree Program**

Demand for personal use Christmas tree permits is being met Forest-wide. Occasional requests for commercial Christmas trees are received, but due to limited resources, these requests have not been satisfied.

### **Posts and Poles**

The demand for post and pole sales is being met Forest-wide. However, aspen poles in desired size classes may be limited as the majority of aspen fall in mature and over-mature age classes.

### **Native Seed Collection**

State and federal lands depend on native seed for revegetation projects. Special use permits for native seed collection on public lands are in high demand. Several seed collection companies are based in Sanpete County (T. Shore, white paper). In 2002, the Forest issued 428 permits valued at approximately \$13,000; in 2003, 272 permits worth about \$8000 were issued (L. Nielson, personal communication). The current Plan does not have specific direction regarding the collection of native seed.

## **LIVESTOCK GRAZING SUPPLY AND DEMAND**

Grasslands and shrublands provide forage for domestic livestock grazing. Forest lands (especially aspen on the Manti-La Sal National Forest) support an understory of grasses, shrubs, and forbs. Demand for the various values and uses of rangelands impacts the landbase and the supply of forage available for livestock grazing.

The demand for grazing is ultimately dependent on the demand for sheep and cattle products. Most permittees grazing livestock on the Forest have base properties within San Juan, Grand, Carbon, Emery, Juab, Utah, and Sanpete Counties.

Agriculture is a significant contributor to the economies of Utah and the six counties of the Manti-La Sal market area (Table 23).

**Table 23. Agriculture Receipts for the State of Utah for 2001.**

UTAH AGRICULTURE RECEIPTS for 2001* (million of \$)			
County	Crops	Livestock	Total
Carbon	1.1	4.9	6.0
Emery	3.2	12.2	15.4
Grand	1.2	3.7	4.9
Juab	3.3	8.2	11.5
Sanpete	7.9	85.3	93.2
San Juan	5.0	7.9	12.9
<b>Total</b>	21.7	122.2	143.9

\*2001 Utah Agricultural Statistics and Utah Department of Agriculture and Food Annual Report.

Production of cattle and calves dominates Utah agricultural receipts. In 2000, about 46.3 percent (\$468.4 million) of Utah farm receipts came from sales of cattle and sheep. Since 1995 there has been a steady increase in sales of both cattle and sheep. However, the inventory of cattle has increased slightly while the number of sheep operators and breeding sheep has declined. Utah remains one of the leaders in the production of sheep and lambs (ranked sixth nationally). Recently improved prices for lamb have increased interest in sheep production. The number of livestock on both Forest and private land has been reduced by the recent drought, but most operators are ready to increase production as soon as more average climate conditions return.

### **Demand**

Demand for cattle forage on the Forest exceeds supply. All open cattle allotments are currently being grazed. There are periodic requests from livestock operators to acquire grazing permits. In addition, the Forest received several requests from permittees to convert sheep allotments to cattle allotments while the sheep market was in decline. Because of resource concerns, none of the sheep to cattle conversions requested in recent years have been approved.

Demand for sheep allotments on the Forest has also increased due to market rebound in recent years. All existing sheep allotments are being grazed with the exception of two forage reserve allotments used periodically by operators whose primary allotment is undergoing habitat improvement work.

### **Supply**

The availability of land for grazing is influenced by the demand for other land uses, particularly cropland and urban development. Approximately 13,823,000 acres of land in the U.S. were developed between 1982 and 1992. Of the 13,823,000 acres of land developed, 108,000 acres were in Utah.

Specific grazing capacity, and therefore, maximum supply potential on the Forest, is established through the allotment planning process on individual allotments. An estimate of the grazing supply on the Forest can be developed by summarizing the maximum permitted capacities of the individual allotments. The current estimated supply of forage for grazing on the Forest is about 146,606 AUMs.

Generally, rangelands continue to improve, but a loss of forage for livestock is expected due to displacement by recreation use, successional change of aspen stands to conifer, expansion of pinyon-juniper plant communities, and declining sagebrush communities. Future treatment projects would help sustain the existing forage supply but an increase is not expected.

Demand for forage for cattle and sheep on the Forest currently exceeds supply. This situation could be exacerbated by any additional closures or restrictions on grazing implemented on public lands.

## **RECREATION SUPPLY AND DEMAND**

The rapidly growing travel and tourism industry in Utah is becoming vital to the economic well-being of the state. Recreation, travel, and tourism employment was 7.5 percent of the total employment in the state in 1981, and has increased to an estimated 9.6 percent in 2003. Today, travel is a \$4.2 billion industry (Utah, State of. 2003).

In 1986, the capabilities of the Forest were thought to be limitless. The Forest Plan estimated there would be steady growth in recreation use through the planning period. Recreation use has increased from 703,198 to 2,140,255 Recreation Visitor Days (RVDs) of dispersed recreation (1980 to 2003). Developed recreation has increased from 240,450 to 730,110 RVDs. The Forest Plan estimated, based on the acreage of various Recreation Opportunity Spectrum (ROS) categories, that 5,192,000 RVDs could be accommodated on the Forest. This use was primarily outside of the winter season but included the hunting season.

The current Forest Plan estimated visitor use at approximately one million recreation visitor days. Current National Visitor Use Monitoring results data shows that the 1986 estimates were high even at today's use levels (Table 24).

**Table 24. Manti-La Sal National Forest Annual Recreation Use Estimate.**

NATIONAL FOREST VISITS		SITE VISITS		WILDERNESS VISITS	
Visits	Error Rate	Visits	Error Rate	Visits	Error Rate
804,301	21 %	868,618	21.5 %	1,202	53.8 %

Source: National Visitor Use Monitoring – August 2002.

According to the National Visitor Use Monitoring Survey, “the top five recreation activities of visitors in the Forest were viewing natural features, viewing wildlife, relaxing, hiking/walking, and driving for pleasure (Table 25). Visitors also picked a primary activity for their current recreation visit to the Forest. The top primary activities were developed camping, relaxing, bicycling, other nonmotorized activities, and hiking/walking (Table 25). (Note: The results of the National Visitor Use Monitoring Survey analysis do not identify the types of activities visitors would like to have offered on the national forests. It also does not tell us about displaced Forest visitors who no longer visit the Forest because the activities they desire are not offered). Hunting is a popular activity that brings many visitors to the Forest over a short time.



**Table 25. Manti-La Sal National Forest Activity Participation and Primary Activity.**

ACTIVITY	PERCENT PARTICIPATION	PERCENT WHO SAID IT WAS THEIR PRIMARY ACTIVITY
Camping in developed sites (family or group)	28.6	16.0
Primitive camping	12.9	3.0
Backpacking, camping in unroaded areas	0.3	0.2
Resorts, cabins and other accommodations on Forest Service managed lands (private or Forest Service run)	0.2	0.0
Picnicking and family day gatherings in developed sites (family or group)	28.1	0.3
Viewing wildlife, birds, fish, etc on National Forest System lands	56.7	1.1
Viewing natural features such as scenery, flowers, etc on National Forest System lands	70.6	3.6
Visiting historic and prehistoric sites/area	3.6	0.0
Visiting a nature center, nature trail or visitor information services	2.8	0.2
Nature Study	1.8	0.0
General/other- relaxing, hanging out, escaping noise and heat, etc.	56.2	12.4
Fishing - all types	17.0	7.3
Hunting - all types	6.1	5.1
Off-highway vehicle travel (4-wheelers, dirt bikes, etc)	20.4	6.5
Driving for pleasure on roads	32.7	6.3
Snowmobile travel	5.6	5.5
Motorized water travel (boats, ski sleds, etc)	0.5	0.1
Other motorized land/air activities (plane, other)	0.1	0.0
Hiking or walking	47.0	9.1
Horseback riding	1.7	1.1
Bicycling, including mountain bikes	13.1	11.9
Nonmotorized water travel (canoe, raft, etc.)	0.2	0.0
Downhill skiing or snowboarding	NA	NA
Cross-country skiing, snow shoeing	0.7	0.0
Other nonmotorized activities (swimming, games and sports)	21.3	9.8
Gathering mushrooms, berries, firewood, or other natural products	7.0	0.3

### **Recreation Activities**

Since the implementation of the Forest Plan, mountain biking has become a common activity across the Forest. Extreme mountain biking has become popular among a segment of the mountain bike community in the Moab area resulting in unauthorized overland travel and construction of trails.

Rock climbing and bouldering have increased in popularity since Forest Plan implementation. Maple Canyon on the San Pitch Division is a nationally known climbing area recognized for its conglomerate rock walls and challenging climbs. Areas near Joe's Valley Reservoir are popular for bouldering. Impacts from rock climbing on the Forest are generally low.

**Winter Recreation**

Several types of winter recreation activities occur on the Forest. On the Manti Division, snowmobile users and cross country skiers enjoy the open terrain, gentle routes, and deep snow on top of the Wasatch Plateau. Downhill skiing, snowboarding, and sledding are common on the western slopes of the Wasatch Plateau. Because of high recreation use, parking and traffic hazards exist along state highways crossing the Plateau.

Winter recreation use is also common on the La Sal and Abajo mountains. Geyser Pass and La Sal Pass draw multiple users including snowmobiles, cross country skiers, sledders, and snowshoers. Snowboarders and downhill skiers traverse the terrain between the switchbacks of Geyser Pass. User developed sled hills create safety concerns where sledders are deposited on roads. Winter parking areas exist at Geyser Pass and across from Dalton Springs Campground on Harts Draw Road.

**Outfitter and Guides**

The Forest issues outfitter and guide permits covering a variety of activities including guided hunting, mountain bike and ATV touring, and other recreation related activities. The Forest Plan states the Forest should “manage outfitter-guide operations in harmony with activities of non-guided visitors.” Use capacity should be established in some areas of the Forest to ensure quality experiences and minimize conflicts.